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Residential Energy
Consumption Survey:

Consumption and Expenditures

April 1980 Through March 1981

Part 1:
National Data

Energy Information Administration
Office of Energy Markets and End Use
U.S. Department of Energy

September 1982

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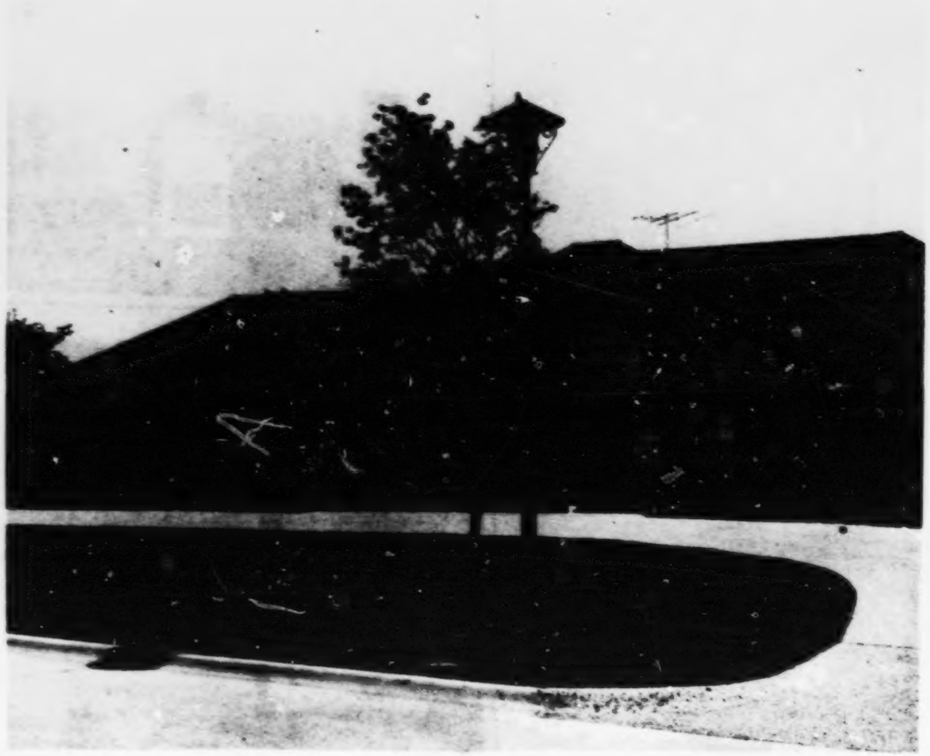

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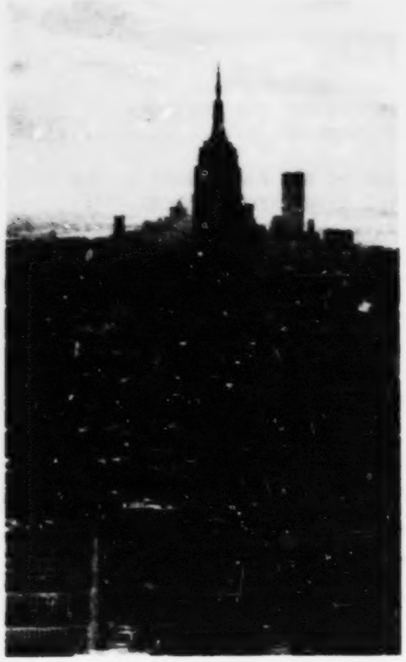

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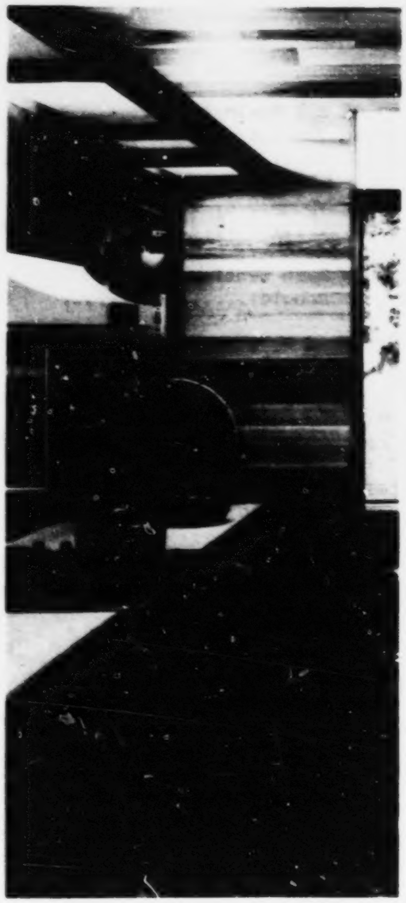

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Summary of Findings

Introduction

This is the second report of the 1980 Residential Energy Consumption Survey, which covers consumption for the period April 1980 through March 1981. It contains data on energy consumption and expenditures. The previous report, Residential Energy Consumption Survey: Housing Characteristics, 1980, provides information on the characteristics of the housing stock, fuel use, and appliances.[1]

The 1980 survey is the third in a series of surveys of residential energy use. These three surveys provide a detailed three-year record of residential energy use patterns for 1978, 1979, and 1980.[2] Each survey is based on a different sample of households. This summary gives highlights of a comparison of the findings for the three years.

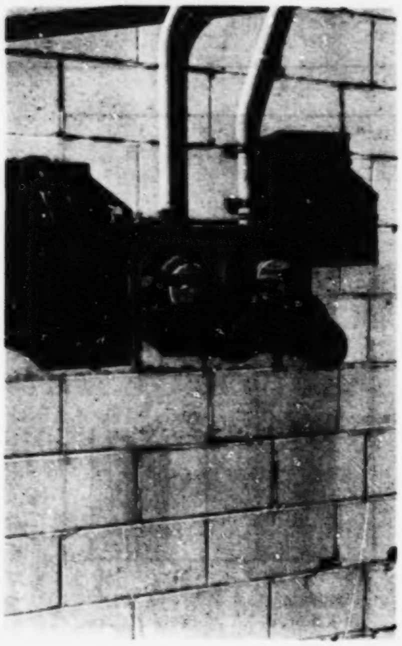
"Energy consumption...was lower than in the previous year, the second time average consumption has fallen."

This report contains detailed tabulations of total consumption and expenditures and of consumption and expenditures per household for all fuels and for specific fuels. These data are given by significant energy-related characteristics of the household. Energy use by the measured area of the house is also included. This report also contains results of an effort to measure consumption of wood fuels.

Trends in Consumption and Expenditures

Energy consumption per household for the year ending March 1981 was lower than in the previous year, the second time average consumption has fallen. For 1980, the average household consumed 114 (± 3) million Btu, while in 1979 and 1978, the figures were 126 (± 6) and 138 (± 5) million Btu, respectively.[3] Over the three-year period, average consumption has dropped by 24 million Btu, or by 18 percent, from the 1978 value.

In 1980, the residential sector consumed an estimated total of 9.3 (+0.3) quadrillion Btu (excluding wood), which was 12 percent of the total energy consumed in the United States.[4] The total amount of energy consumed by the residential sector declined by 1.3 (± 0.8) quadrillion Btu between 1978 and 1980.



"For 1980, the average household consumed 114 million Btu."

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[1] The report is Residential Energy Consumption Survey: Housing Characteristics, 1980, DOE/EIA-0314, June 1982, 445pp.

[2] Throughout this summary, 1978 refers to the period April 1978 through March 1979, 1979 to April 1979 through March 1980; and 1980 to April 1980 through March 1981. A separate analysis indicates there is little difference in estimates of consumption for these heating year periods compared to the calendar year; see "April 1980 through March 1981" in the Glossary.

[3] The ± value in the parenthesis after a statistic quoted in the text represents two standard errors of the statistic. The standard error is a measure of the variability of an estimate that is based on a sample survey. For further explanation of standard errors, see Appendix C.

[4] A total of 74.80 quadrillion Btu were consumed from April 1980 through March 1981--Monthly Energy Review, July 1982, DOE/EIA-0035 (82/07). Electricity consumption is converted at the rate of 3,412 Btu per kilowatt-hour. This Btu value of electricity is at the household level and excludes electrical energy losses. If electrical energy losses are included, then the residential sector consumed about 19.2 percent of the total energy consumed in the United States.

Summary of Findings (Continued)

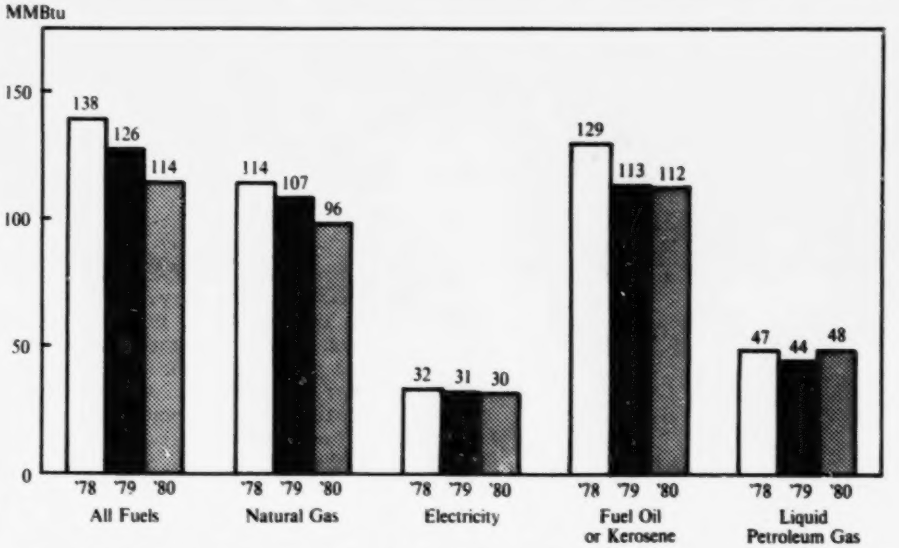
The decline in average consumption per household has been partially offset by an increase in the number of households. The number of households for the successive surveys from 1978 to 1980 are 76.6, 77.5, and 81.6 million, respectively. The large jump from 1979 to 1980 is due, in part, to changing from the 1970 to the 1980 Decennial Census as the basis for population estimates. The decline in total consumption from 1978 to 1980 may be underestimated because of this factor.

During recent years, the cost of energy has risen. Consequently, the average expenditure for fuels used in the home (that is, excluding motor gasoline and also excluding expenditures for wood fuels) has risen for the past three years. Average expenditures per household were $917 for the period ending March 1981, and for the preceding two years, the figures were $888 and $856, respectively, in constant 1980 dollars. Total expenditures for energy for 1980 by the residential sector are estimated to be $74.8 billion, and for 1979 and 1978, the totals were $68.9 and $65.6 billion (in 1980 dollars).

Consumption of Specific Fuels

While total energy consumption per household has declined over the past three years, the pattern of use of specific fuels has varied. Only natural gas consumption has shown a persistent decline each year, as shown in Figure 1. Fuel oil and kerosene use declined from 1978 to 1979 but then remained steady in 1980. There has been no statistically significant change in the use of electricity and liquid petroleum gas over this period.

Figure 1. Average Household Total Energy Consumption of All Fuels and of Specific Fuels—1978, 1979, and 1980 (Million Btu per Household)



Note: For specific fuels, the average is for all households using the fuel except for fuel oil and kerosene where the average is only for households using them as the main heating fuel.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Tables 5, 7, 9, 12, and 13.

"Only natural gas consumption has shown a persistent decline each year."

Summary of Findings (Continued)

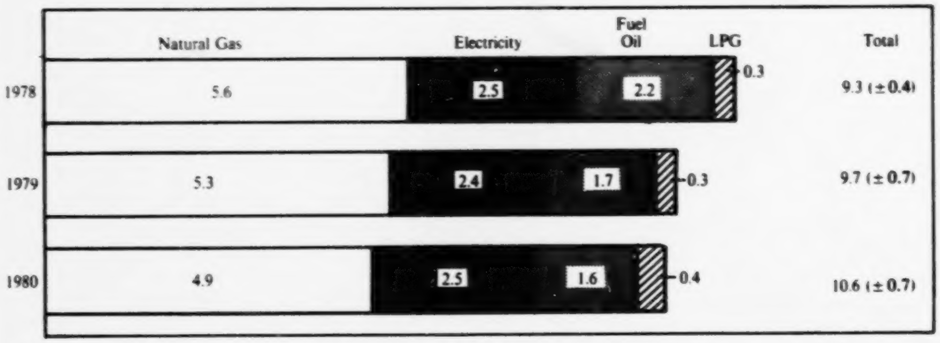
"The comparison of homes heated by electricity with homes heated by other fuels is misleading."

The number of households using natural gas has increased each year, and the total energy consumption per household for natural gas has declined. Therefore, there has not been a significant change in the total amount of natural gas consumed. The changes in the total amounts of the other fuels consumed are also not statistically significant, although the total decline in consumption is significant. Total consumption for all fuels and for each specific fuel for the three years are shown in Figure 2.

The total amount of energy used in the home varies considerably with the main heating fuel, as shown in Figure 3. In 1980, households that used natural gas as the main heating fuel consumed an average of 131 million Btu; electricity users consumed 60 million; fuel oil and kerosene users, 145 million; and liquid petroleum gas users, 105 million. From 1978 to 1980, average total energy consumption declined for all types of heating fuel except liquid petroleum gas, where the change is not statistically significant.

The comparison of homes heated by electricity with homes heated by other fuels is misleading. Electricity arrives in the home ready to be used as a source of heat. The other fuels must be burned to obtain their heat content. Because the burning process is inefficient, more of these fuels must be consumed to provide comparable heat. In addition, electricity has often been generated by burning a fossil fuel, and this fact is not reflected in the comparisons. There are other factors that also affect this comparison: a higher concentration of electrically heated homes are in the warmest weather zone; electrically heated homes are newer and smaller.

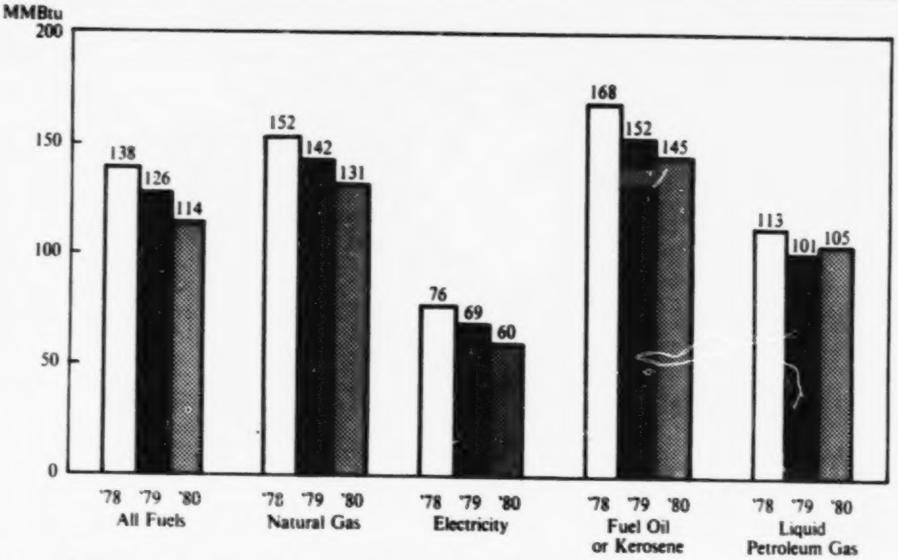
Figure 2. Total Residential Energy Consumption by Fuel Type—1978, 1979, and 1980 (Quadrillion Btu)



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 1.

Summary of Findings (Continued)

Figure 3. Average Household Total Energy Consumption by Main Heating Fuel Used—1978, 1979, and 1980 (Million Btu per Household)



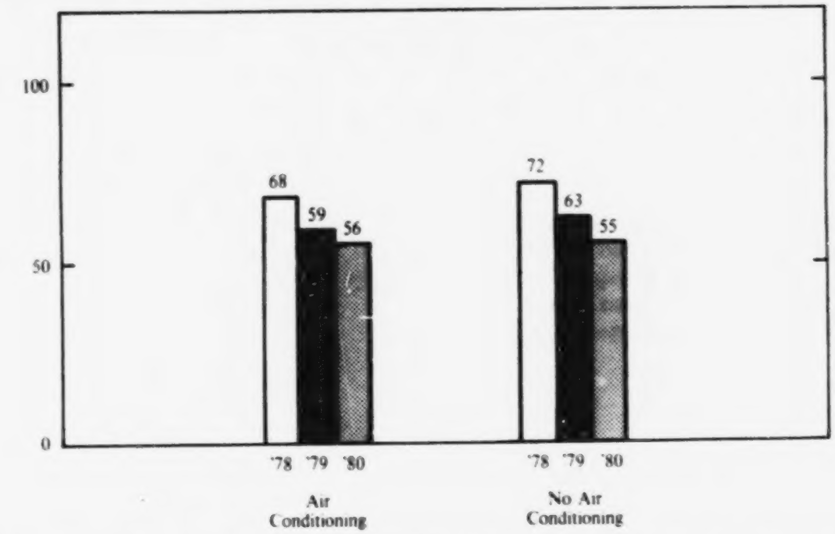
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 5.

"The total amount of energy used in the home varies considerably with the main heating fuel."

While the average use of electricity, for all households that use it, has not changed, there has been a decline in its use by those households that use it as their main heating fuel. Figure 4 shows average electricity consumption per household for households that used electricity for air conditioning and those that did not. For both groups, there has been a persistent decline in electricity usage for the three-year period. The decline is apparently slightly larger for households that do not have air conditioning, although this difference is not statistically significant. Average consumption is lower for households that use electricity for both heating and air conditioning—lower than for households that use it only for heating. Households that use electricity for both heating and air conditioning are concentrated in the South (64 percent of these households in 1980) where total space conditioning requirements (including cooling) are low.

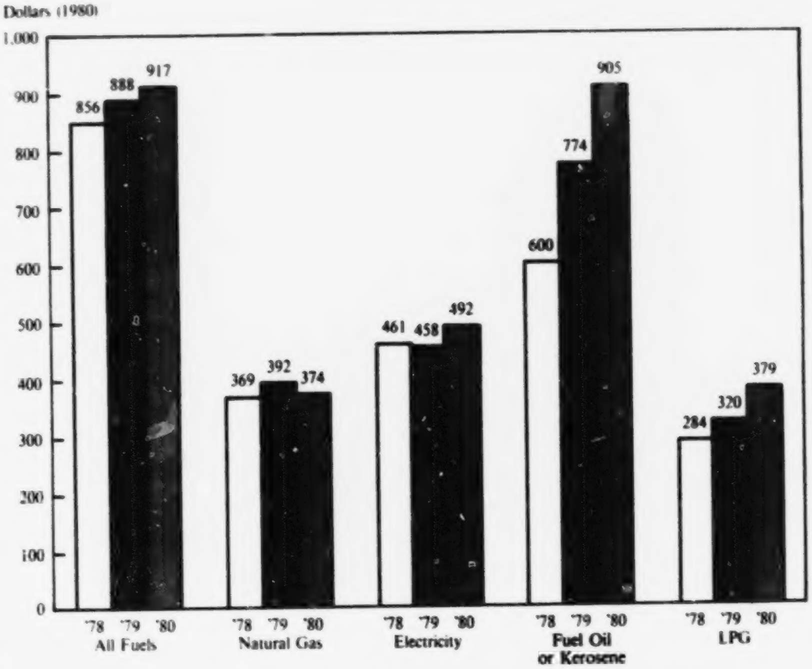
There have been wide differences in the patterns of expenditures of households for different fuels, as shown in Figure 5. The average household's expenditures for natural gas have not changed significantly over this period. The average expenditures for electricity increased slightly, while expenditures for liquid petroleum gas increased by one-third and fuel oil by one-half.

Figure 4. Average Electricity Use by Households Whose Main Heating Fuel Is Electricity—1978, 1979, and 1980 (Million Btu per Household)



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 10

Figure 5. Average Household Expenditures for All Fuels and for Specific Fuels—1978, 1979, and 1980 (1980 Dollars per Household)



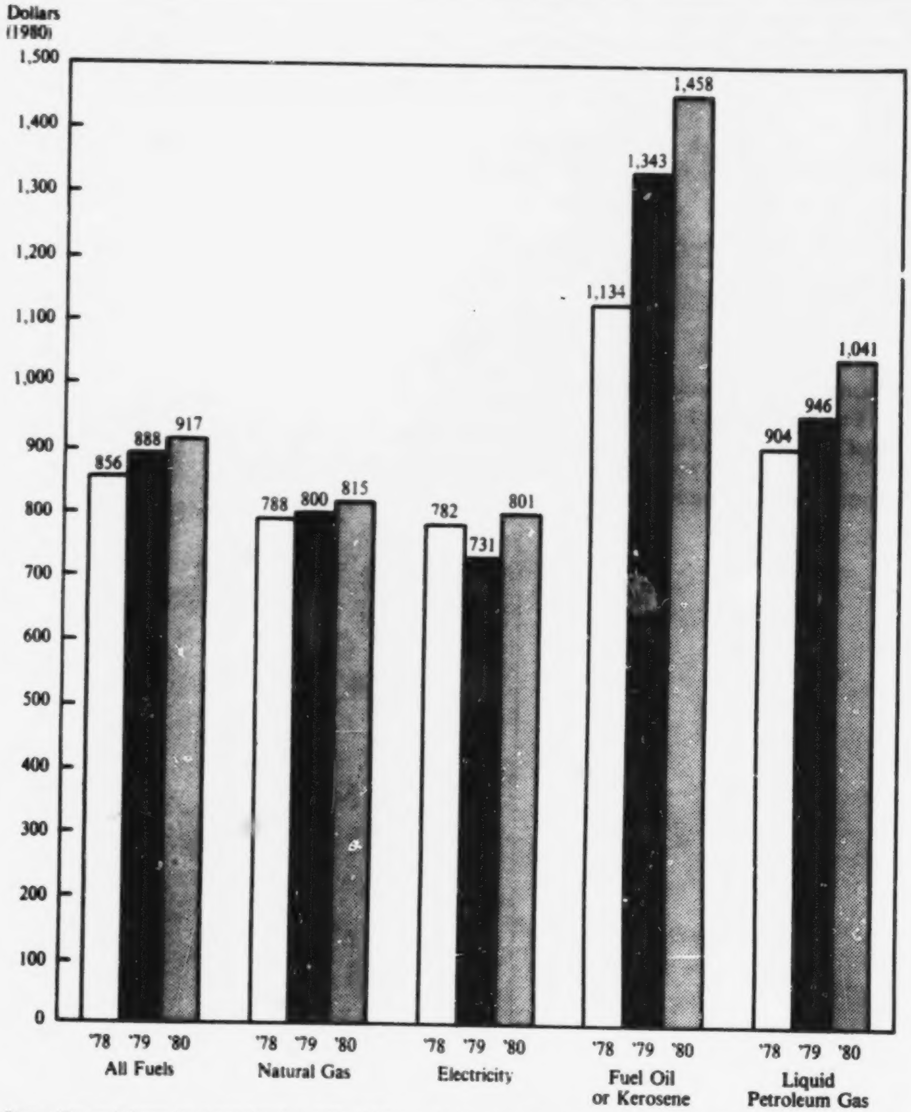
Note: For specific fuels, the average is for all households using fuels, except for fuel oil and kerosene where the average is only for households using them as the main heating fuel. The average for all fuels is an average of specific fuels weighted by the proportion of households that use each fuel. To approximate the average for all fuels, multiply the average for a specific fuel by the proportion of households using the fuel, and add the totals for the four fuels.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch; 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Tables 6, 7, 9, 12, and 13.

Summary of Findings (Continued)

Figure 6 gives average total expenditures (in 1980 dollars) for energy by main heating fuel for the three surveys. Households that heat with fuel oil and kerosene or with liquid petroleum gas have experienced an increase in total energy costs, which largely reflects the increases in costs for the heating fuels. This is not unexpected since heating costs are the largest component of total in house energy costs. Households that heat with natural gas or electricity have had very modest increases in their total energy bills.

Figure 6. Average Household Total Energy Expenditures by Main Heating Fuel Used—1978, 1979, and 1980 (1980 Dollars per Household)



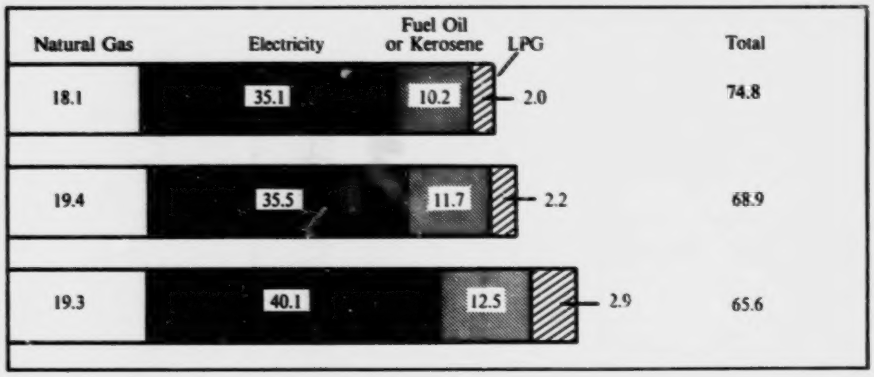
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 6.

"There have been wide differences in the patterns of expenditures for different fuels."

Summary of Findings (Continued)

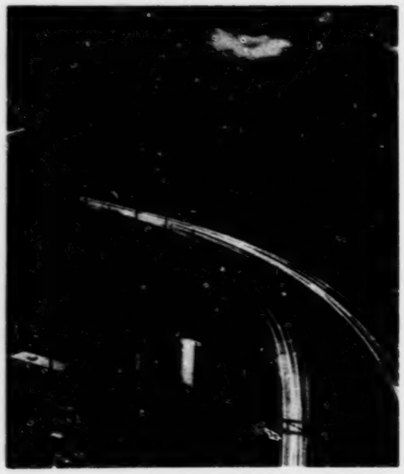
Total expenditures for each fuel and for total energy use are shown in Figure 7. Expenditures for natural gas have not changed significantly. Expenditures for electricity have increased somewhat, and expenditures for fuel oil and liquid petroleum gas have increased the most.

Figure 7. Total Residential Energy Expenditures by Fuel Type—1978, 1979, and 1980 (1980 Dollars)



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1980 Residential Energy Consumption Survey. See Table 1.

Regional Variations in Energy Use

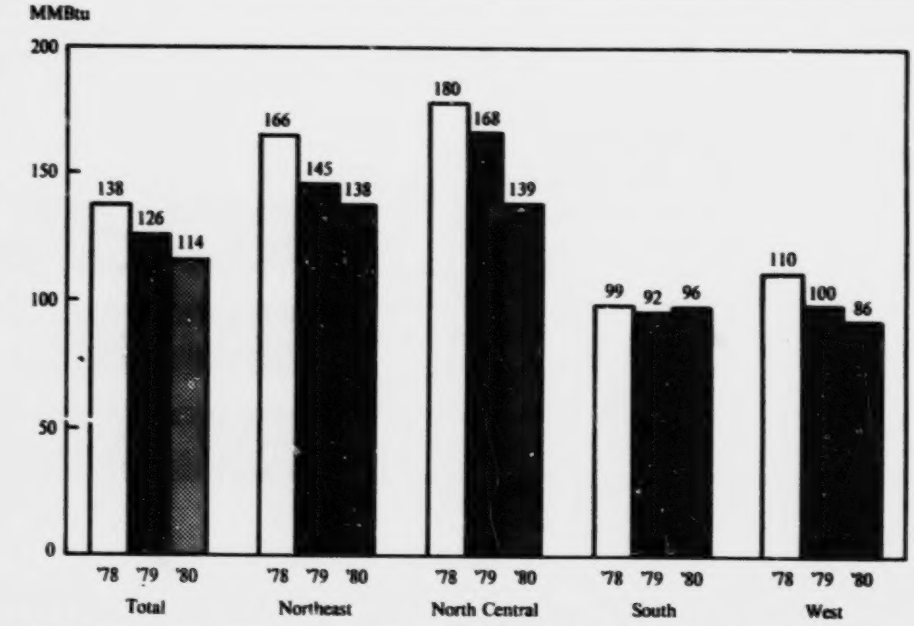


Energy use varied substantially among the four Census regions of the country, although the differences narrowed substantially over the three years of the residential survey. Figure 8 gives the average amount of total energy consumed per household by region. The North Central and Northeast regions had the highest consumption in 1980, with average consumptions of 180 and 166 million Btu per household, respectively. The West had the lowest average of 99 million Btu per household. Both the Northeast and North Central regions showed substantial declines in energy consumption per household over the past three years, while there has been a modest decline in consumption in the West. In the South, consumption did not change significantly.

These consumption data depend heavily upon the climatic conditions, as well as conservation changes in the housing unit. Figure 9 shows the average annual heating degree-days and cooling degree-days for each year for each region. The Northeast's winter in 1980 was more severe than in the preceding year, but the region still used less energy per household. This reduction most likely reflects the effects of conservation improvements and changes in use patterns (such as lowering thermostats). Part of the large drop in consumption in the North Central region from 1979 to 1980 can be attributed to a milder winter, although it is likely that some of the change is also due to other factors, perhaps conservation. Consumption in the South and the West seems to have followed the changes in the weather patterns.

Summary of Findings (Continued)

Figure 8. Average Household Total Energy Consumption by Region—1978, 1979, and 1980 (Million Btu per Household)



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 5.

"Both the Northeast and North Central regions showed substantial declines in energy consumption per household over the past three years."

Summary of Findings (Continued)

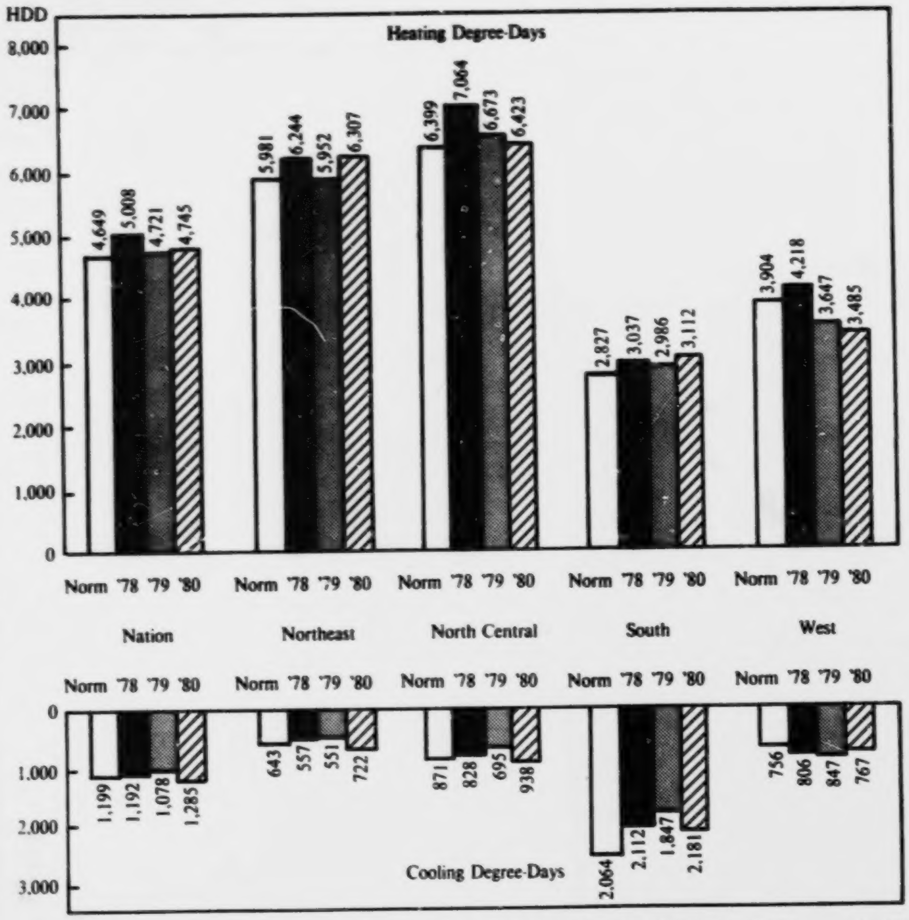


Figure 9. United States and Regional Heating and Cooling Degree-Days and 49 Year Norms—1978, 1979, and 1980

Source: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population (1980 Census) (July 1931-June 1981), September 1981.
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, State, Regional, and National Monthly and Seasonal Cooling Degree Days Weighted by Population (1980 Census) (July 1931-June 1981), September 1981.

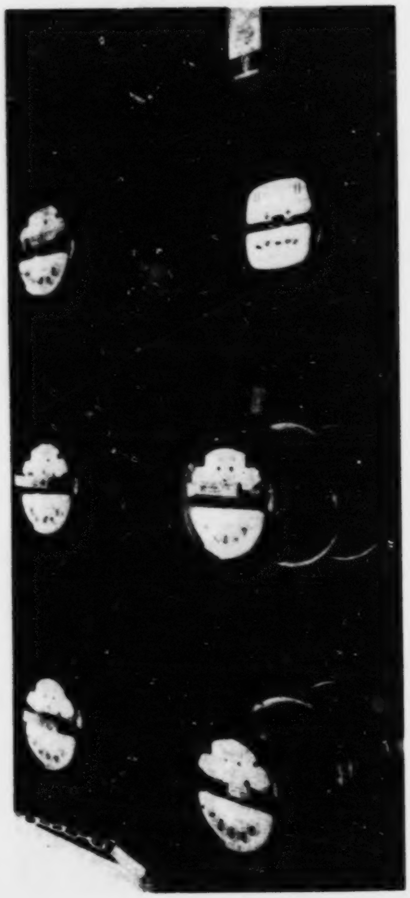
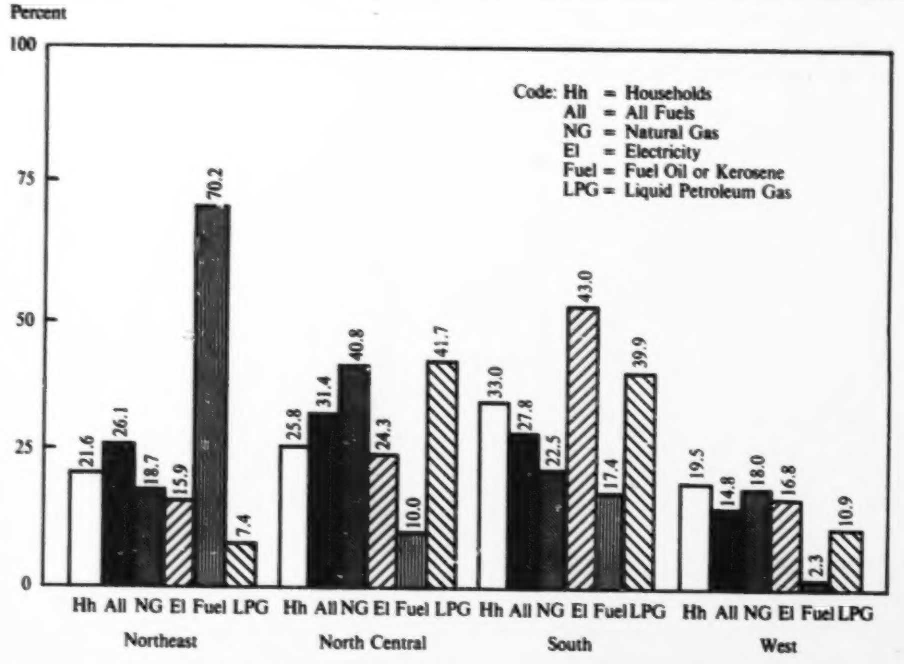


Figure 10 shows the percent of each fuel consumed, of total fuel consumption and of households by region. The Northeast region, for example, has 21.6 percent of the households and consumes 26.1 percent of the total energy consumed by the residential sector. The North Central region also consumes a higher proportion of energy than the percentage of households located in the region. The North Central region consumes slightly more than 40 percent of the national consumption of natural gas and liquid petroleum gas.

Summary of Findings (Continued)

Figure 10. Percent of Total Households, Percent of All Fuels and Specific Fuels Consumed Within Each Census Region—1980



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 1.

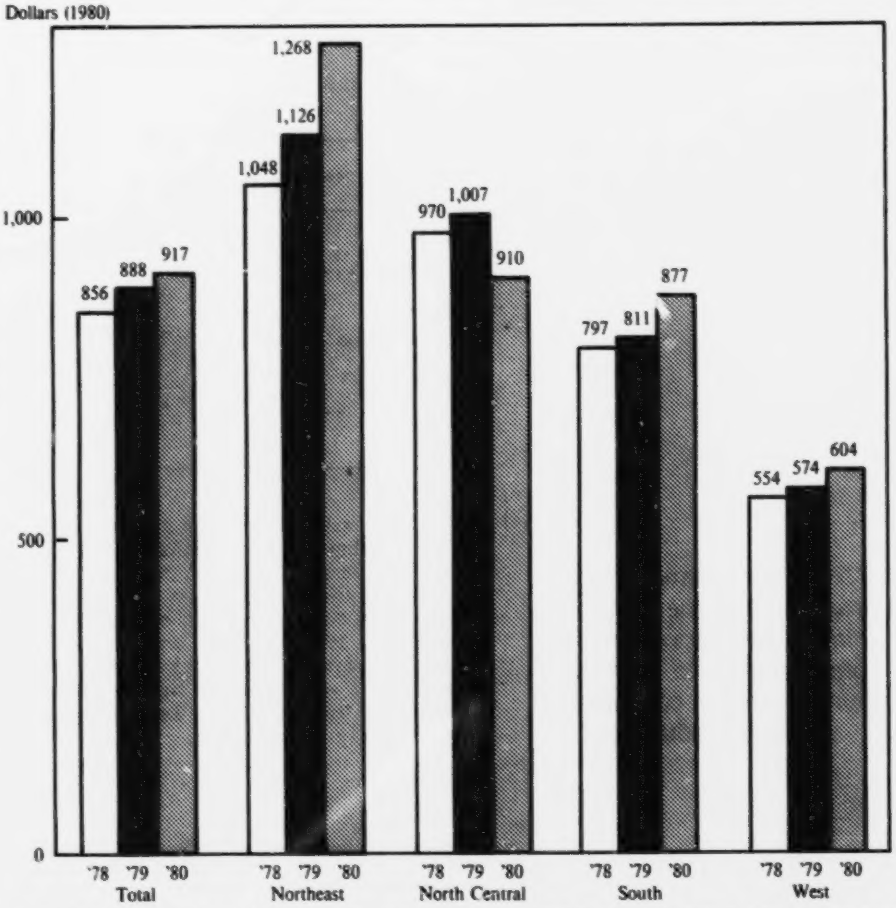
The South and West both consume a lower percentage of energy than their percentages of households. The South is the largest consumer of electricity, consuming 43 percent of total residential supply of electricity. It also consumes close to 40 percent of all liquid petroleum gas. The West has the smallest percentage of households, 19.5 percent, and also consumes the smallest percentge of energy 14.8 percent.

The South's status as a relatively low user of energy is misleading, because the South uses a large amount of electricity per household. The average consumption of electricity per household in the South is higher than in any other region. Electricity arrives in the home ready to be used, so fewer Btu of electricity must be consumed compared to other fuels which must be burned, to provide comparable service. Electricity is generated from a variety of sources. An adjustment of the Btu value of electricity can be made by including the energy content of fossil fuels burned to generate it. Such an adjustment would raise the relative energy consumption in the South to a level close to that of the Northeast.

Summary of Findings (Continued)

While the regions have become more similar in their average amount of energy consumed per household, they have moved apart in average expenditures for energy. Figure 11 gives average expenditures (in 1980 dollars) per household for all energy in each region for the three years. In the Northeast, expenditures increased by over 20 percent (in constant dollars) over the three-year period. In the North Central region, expenditures declined, while in the South and West, expenditures increased in the neighborhood of 10 percent. The large increase in the Northeast resulted from that region's heavy dependence upon fuel oil as the major heating fuel. The North Central region uses natural gas and its expenditures were lower because of the relative stability of the price of natural gas and the decline in consumption.

Figure 11. Average Total Energy Expenditures by Region—1978, 1979, and 1980 (1980 Dollars per Household)



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commericial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 6.

Summary of Findings (Continued)

Consumption by Weather and Housing Characteristics

The characteristics of the housing unit and the ambient climatic conditions have a great deal to do with the amount of energy consumed by a household. For most households, the largest component of their energy bill is space heating (and possibly cooling in some parts of the country).[5] The amount of energy required to heat a home depends upon its size and the external temperature, among other factors.

Table A gives average energy consumption by size of housing unit and number of heating degree-days in 1980. Housing units which heated areas less than 1,000 square feet consume approximately 60 million Btu less than homes that are larger than 2,000 square feet. This difference is roughly the same for each of the temperature zones. There is an increase in energy consumed with increased heating degree-days for units of the same size category.

Table A. Average Total Consumption by Size of House (Heated Area) and Heating Degree-Days—1980 (Million Btu per Household)

Heating Degree-Day Zone	Less than 1,000 Sq.Ft.	1,000 to 1,999 Sq.Ft.	2,000 Sq.Ft. or More
More than 5,499 HDD	108	139	168
4,000 to 5,499 HDD	78	111	145
Less Than 4,000 HDD	66	93	126

Age of the unit is another factor that is related to energy consumption. Figure 12 shows average consumption by age of the unit for the three different surveys. Newest homes, those built after 1974, consume the least energy and have shown the largest decrease in consumption. In 1980, these homes consumed about one-third less energy than homes built before 1940. From 1978 to 1980, consumption in the newest homes declined 27 percent. Average consumption has fallen by 15 percent for homes built between 1970 and 1974 and before 1960. The decline in consumption for homes built in the 1960's is the lowest, from 6 to 7 percent, and is not statistically significant.

> "The characteristics of the housing unit and the ambient climatic conditions have a great deal to do with the amount of energy consumed by a household."

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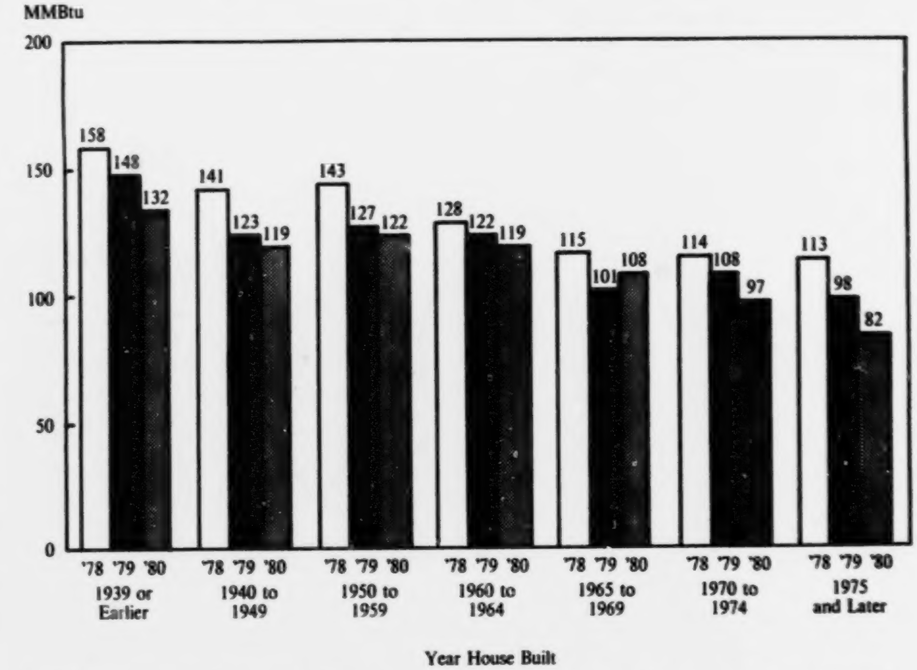
[5] The first results of the analysis of the components of energy usage in the home were published in the National Interim Energy Consumption Survey: Exploring the Variability in Energy Consumption, DOE/EIA-0272, July 1981 and the supplement DOE/EIA0272, October 1981.

Figure 12. Average Total Energy Consumption by Year House Built—1978, 1979, and 1980 (Million Btu per Household)



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 6.

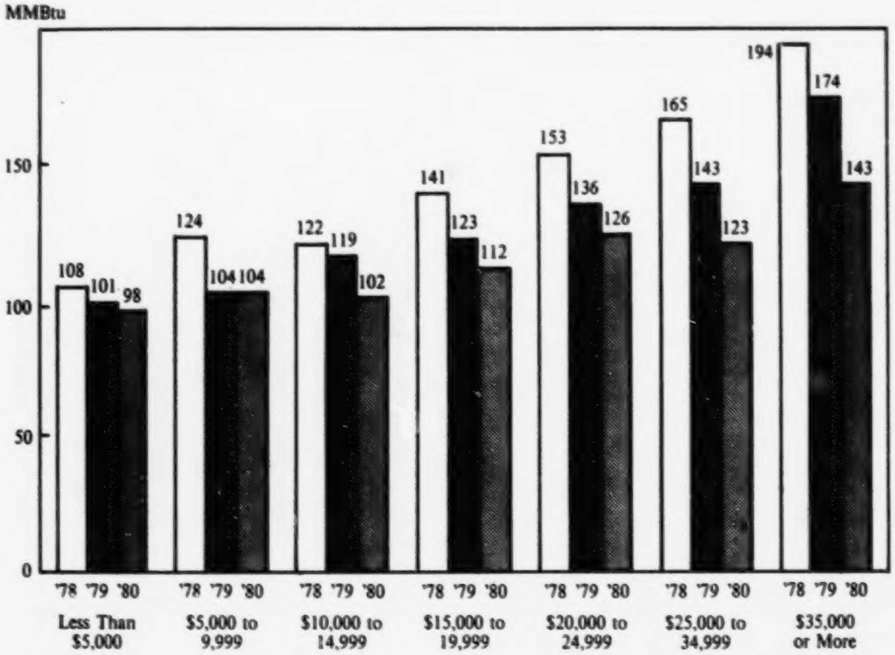
"Homes...built after 1974 consume the least energy and have shown the largest decrease in consumption."

Energy Consumption by Socioeconomic Groups

In 1980, as in previous years, energy consumption is larger for households with large incomes. However, the difference in average consumption levels between different income groups has narrowed from 1978 to 1980.

Figure 13 shows average consumption of all fuels per household by income class for the three years. (Unlike the previous figures, dollar amounts in Figure 13 and 14 have not been normalized to constant 1980 dollars. Rather, they have been left in the nominal values for each year.) Average consumption has declined in each income group, with the larger decreases occurring in the higher income groups. Consumption by the lowest income group declined by 8 percent over the period, while it declined by 24 percent for the highest income group. In 1978, the highest income group consumed about 63 percent more energy than the lowest income group. In 1980, this difference had fallen to 34 percent. These differences in consumption levels between households of different income groups are largely eliminated when households in the same climate zone and with similarly sized houses are compared. (See Table 14.)

Figure 13. Average Total Energy Consumption by Income Class—1978, 1979, and 1980 (Million Btu per Household)



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 5.

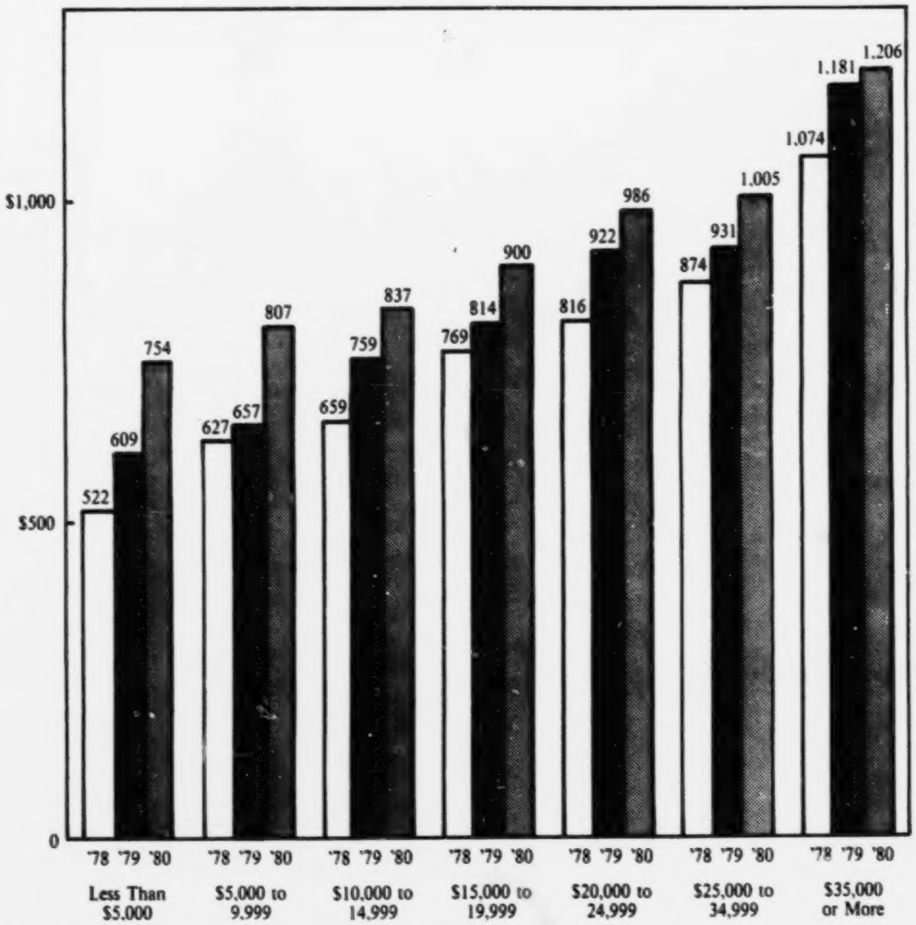
"Average consumption has declined in each income group with the larger decreases occurring in the higher income groups."

Summary of Findings (Continued)

Expenditures, on the other hand, increased much more for the lower income groups than for the higher. Figure 14 gives average expenditures per household for all energy for the three years. Expenditures for the lowest income group increased 48 percent (in nominal dollars) while expenditures for the higher income group increased only 17 percent. Thus the reduction in consumption by the higher income groups significantly reduced the impact of increased energy prices of this period.

There has been a dramatic change in the relative energy consumption patterns of blacks and whites. In 1978, the average white household consumed more energy than the average black household, while in 1980, blacks consumed more, as shown in Figure 15. This difference is accentuated when size of house and climate zone are considered. Blacks consumed more than whites for households living in similar sized houses in the coldest region. (See Table 14.) Consumption by whites has declined each year since 1978, but there has been no statistically significant change in average consumption by blacks over this period.

Figure 14. Average Total Energy Expenditures by Income Class—1978, 1979, and 1980 (Nominal Dollars per Household)

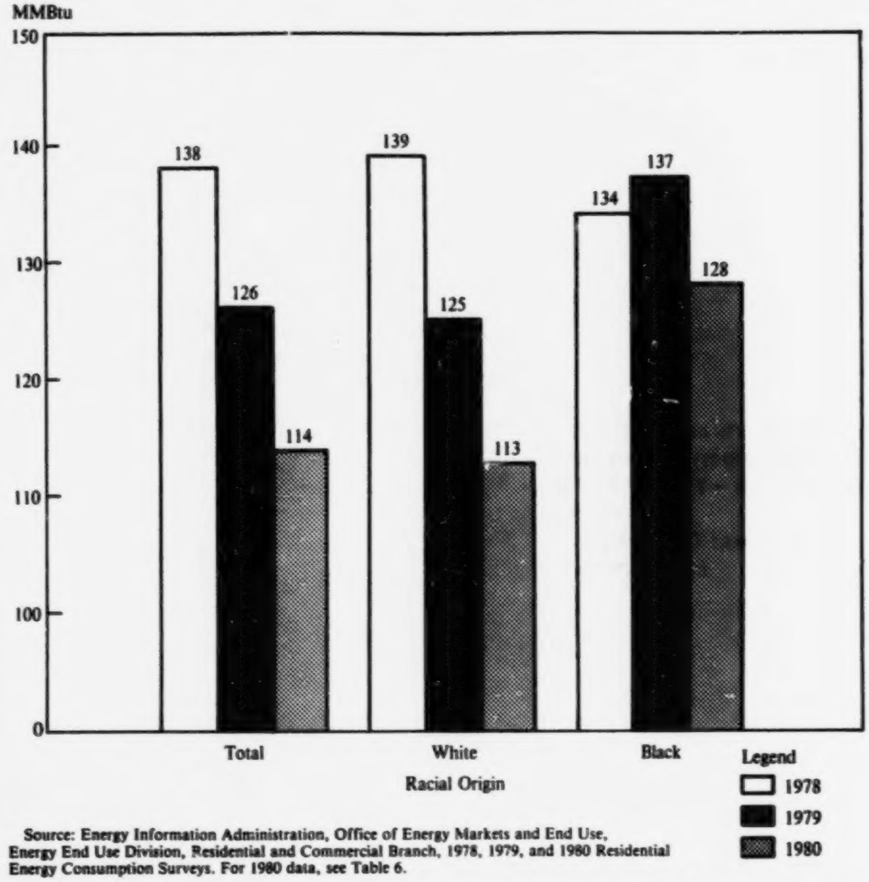


Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 6.

"Expenditures, on the other hand, increased much more for the lower income groups than for the higher."

Summary of Findings (Continued)

Figure 15. Average Total Energy Consumption by Racial Origin—1978, 1979, and 1980 (Million Btu per Household)



Source: Energy Information Administration, Office of Energy Markets and End Use, Energy End Use Division, Residential and Commercial Branch, 1978, 1979, and 1980 Residential Energy Consumption Surveys. For 1980 data, see Table 6.

Wood Consumption

This report contains some results from an initial effort to estimate the amount of woodfuel burned in the house. Because these data are likely to have large errors and uncertainties, they provide only rough estimates of wood consumption.

For the other fuels in this survey, the consumption data have been obtained from the utility or fuel supplier and are based on records of actual deliveries to the household. For wood, such precise data are not available. The amount of wood consumed is obtained from respondents based on their best recollection of the amount consumed over the year. These types of recall data are subject to considerable error.

A second source of error in the data is the lack of precision in determining the quantity of wood burned. Quantities of wood are not measured in the same units in all parts of country. A common measure of wood volume is the cord, which is a large quantity of wood—it measures 4 feet high by 8 feet

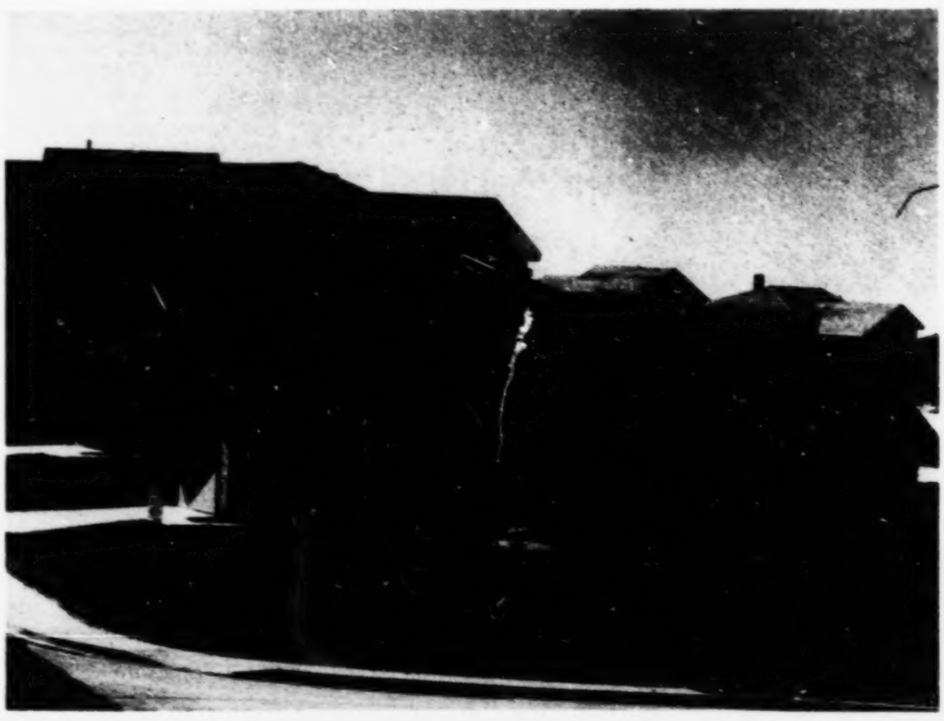
"Wood comprised an average of 8 percent of all energy. . . consumed by the household."

wide by 4 feet deep. Most people do not know exactly how much wood is in the unit they do purchase. In some parts of the country, a face cord--4 feet high by 8 feet wide by 16 inches deep--is referred to as a cord, although it only contains one-third the volume of a standard cord. Wood is also purchased by the truck load, the quantity of which can vary considerably depending on the size of the truck and the manner in which the wood is loaded in the truck.

A third source of uncertainty in the data lie in the conversion of quantity of wood burned into Btu. The amount of energy that can be obtained from burning wood varies considerably, depending upon the type of wood and how well it has been dried. For this report, a conversion factor of 20 million Btu per cord has been assumed.

Efforts are underway to provide better estimates of wood consumption in future surveys. The estimates from this survey give some idea of the magnitude of the importance of wood relative to other fuels used in the residential sector.

Data in this report are for households that reported burning at least one-third cord of wood. For these households, wood comprised an average of 8 (± 3) percent of all the energy (including wood) consumed by the household. For certain groups of the population, wood comprised a significant portion of energy consumed. Among households that reported using wood as the main heating fuel, wood consumption was at least 50 percent of all the energy used in the home, and in the coldest region of the country, wood averaged over 70 percent of the energy used in the home. Households that used natural gas or fuel oils as the primary heating fuel tended not to use large amounts of wood. However, households that used electricity or liquid petroleum gas as their main heating fuel, but also burned wood, tended to use a large amount of wood as a secondary heating fuel.



Percentage Residential Proportionate Consumption

Table 3. U.S. Residential Proportionate Energy Consumption of Fuels—April 1980 Through March 1981 (Percent of Total Btu)

HOUSEHOLD CHARACTERISTICS	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
TOTAL HOUSEHOLDS	100.0	53.0	26.4	16.7	3.9
CENSUS REGION AND DIVISION					
NORTHEAST	100.0	38.0	16.1	44.8	1.1
NEW ENGLAND	100.0	25.0	16.9	56.3	1.8
MIDDLE ATLANTIC	100.0	41.9	15.9	41.3	Q
NORTH CENTRAL	100.0	69.0	20.5	5.3	5.2
EAST NORTH CENTRAL	100.0	70.7	19.4	5.6	4.3
WEST NORTH CENTRAL	100.0	64.6	23.2	4.6	7.5
SOUTH	100.0	43.1	40.9	10.4	5.6
SOUTH ATLANTIC	100.0	32.4	40.4	20.5	6.8
EAST SOUTH CENTRAL	100.0	41.9	51.0	Q	5.9
WEST SOUTH CENTRAL	100.0	60.3	35.8	Q	3.7
WEST	100.0	64.5	30.0	2.6	2.9
MOUNTAIN	100.0	67.3	25.4	Q	5.8
PACIFIC	100.0	63.3	32.0	3.1	1.6
AREA TYPE					
URBAN	100.0	62.0	21.7	15.7	.6
RURAL	100.0	29.6	38.7	19.1	12.6
SMSA					
SMSA	100.0	57.5	23.8	17.1	1.6
NON-SMSA	100.0	42.6	32.4	15.5	9.4
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE					
<2,000 CDD AND >7,000 HDD	100.0	50.6	22.6	20.3	6.5
<2,000 CDD AND 5,500 TO 7,000 HDD	100.0	63.8	18.3	15.4	2.5
<2,000 CDD AND 4,000 TO 5,499 HDD	100.0	43.4	24.2	29.5	3.0
<2,000 CDD AND <4,000 HDD	100.0	56.6	32.8	6.0	4.6
>2,000 CDD AND <4,000 HDD	100.0	43.2	48.5	1.9	6.4
UTILITIES PAID BY HOUSEHOLD					
ALL PAID BY HOUSEHOLD	100.0	53.5	28.1	14.2	4.3
SOME PAID, SOME INCLUDED IN RENT	100.0	54.0	12.5	32.9	.6
ALL INCLUDED IN RENT	100.0	46.9	15.8	35.6	Q
OTHER	100.0	40.1	22.0	Q	6.2

See footnotes at end of table.

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Tables

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Residential Consumption and Expenditures

Table 1. U.S. Residential Energy Consumption and Expenditures—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSE-HOLDS (MIL-LION)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)
TOTAL HOUSEHOLDS..................	81.6	9.32	74.8	4.94	19.3	2.46	40.1	1.55	12.5	0.36	2.9
CENSUS REGION AND DIVISION											
NORTHEAST....................	17.7	2.43	22.4	.92	4.7	.39	8.6	1.09	8.8	.03	.3
NEW ENGLAND.................	4.3	.57	5.6	.14	.8	.10	2.1	.32	2.6	.01	.1
MIDDLE ATLANTIC.............	13.4	1.87	16.8	.78	3.9	.30	6.5	.77	6.2	Q	.2
NORTH CENTRAL................	21.1	2.92	19.2	2.02	7.2	.60	9.7	.16	1.2	.15	1.1
EAST NORTH CENTRAL..........	14.8	2.08	13.6	1.47	5.4	.40	6.6	.12	.9	.09	.7
WEST NORTH CENTRAL..........	6.3	.84	5.5	.54	1.8	.20	3.0	.04	.3	.06	.4
SOUTH........................	27.0	2.59	23.6	1.11	4.3	1.06	16.0	.27	2.2	.15	1.2
SOUTH ATLANTIC..............	14.0	1.29	13.2	.42	1.9	.52	8.5	.26	2.1	.09	.7
EAST SOUTH CENTRAL..........	5.2	.47	4.0	.20	.7	.24	3.0	Q	Q	.03	.2
WEST SOUTH CENTRAL..........	7.7	.83	6.4	.50	1.7	.30	4.4	Q	Q	.03	.2
WEST.........................	16.0	1.38	9.6	.89	3.1	.41	5.9	.04	.3	.04	.3
MOUNTAIN....................	4.1	.43	2.9	.29	1.0	.11	1.7	Q	Q	.02	.2
PACIFIC.....................	11.8	.95	6.7	.60	2.1	.30	4.2	.03	.2	.01	.1
AREA TYPE											
URBAN........................	56.0	6.75	50.3	4.18	16.5	1.47	24.9	1.06	8.5	.04	.3
RURAL........................	25.6	2.57	24.5	.76	2.8	.99	15.3	.49	3.9	.32	2.5
SMSA											
SMSA.........................	55.6	6.55	51.4	3.76	14.9	1.56	26.6	1.12	9.0	.10	.8
NON-SMSA.....................	26.0	2.77	23.4	1.18	4.4	.90	13.6	.43	3.5	.26	2.0
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)--LONG-TERM AVERAGE											
<2,000 CDD AND >7,000 HDD.....	8.5	1.06	8.1	.54	2.0	.24	3.8	.22	1.7	.07	.5
<2,000 CDD AND 5,500 TO 7,000 HDD............	20.9	2.95	20.7	1.88	7.1	.54	9.3	.45	3.6	.07	.6
<2,000 CDD AND 4,000 TO 5,499 HDD............	21.1	2.59	22.2	1.12	5.1	.63	10.4	.76	6.1	.08	.6
<2,000 CDD AND <4,000 HDD.....	19.0	1.70	13.4	.96	3.4	.56	8.6	.10	.8	.08	.6
>2,000 CDD AND <4,000 HDD.....	12.1	1.02	10.4	.44	1.7	.50	8.0	.02	.2	.07	.5

See footnotes at end of table.

Table 1. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
UTILITIES PAID BY HOUSEHOLD											
ALL PAID BY HOUSEHOLD.........	69.3	8.12	65.2	4.34	16.6	2.28	36.6	1.15	9.2	0.35	2.7
SOME PAID, SOME INCLUDED IN RENT..........................	6.7	.68	5.3	.36	1.6	.08	1.8	.22	1.8	-	-
ALL INCLUDED IN RENT...........	4.2	.38	3.1	.18	.8	.06	1.2	.14	1.1	Q	Q
OTHER..........................	1.5	.14	1.3	.06	.2	.03	.6	Q	Q	.01	.1
TYPE OF HOUSING STRUCTURE											
SINGLE-FAMILY DETACHED........	53.0	6.61	52.2	3.59	13.3	1.86	29.6	.90	7.2	.26	2.0
OWN..........................	45.5	5.80	45.9	3.15	11.7	1.65	26.1	.79	6.4	.22	1.7
RENT.........................	7.5	.81	6.2	.45	1.6	.21	3.4	.11	.9	.04	.3
SINGLE-FAMILY ATTACHED........	3.3	.39	3.3	.21	1.0	.08	1.5	.09	.7	Q	Q
OWN..........................	2.2	.29	2.4	.15	.7	.05	1.0	.08	.7	Q	Q
RENT.........................	1.1	.10	.8	.07	.3	.03	.5	.01	.1	Q	Q
BUILDING WITH 2 TO 4 UNITS....	9.9	1.09	8.2	.70	3.1	.17	3.3	.21	1.7	.01	.1
OWN..........................	2.0	.29	2.4	.17	.8	.04	.9	.08	.6	Q	Q
RENT.........................	7.9	.80	5.8	.53	2.3	.13	2.4	.13	1.1	.01	-
BUILDING WITH 5 OR MORE UNITS..........................	10.8	.83	7.6	.33	1.5	.20	3.6	.30	2.4	Q	Q
OWN..........................	1.0	.10	1.0	.03	.1	.03	.5	.04	.4	-	-
RENT.........................	9.8	.74	6.6	.30	1.4	.17	3.1	.26	2.1	Q	Q
MOBILE HOME....................	4.6	.39	3.7	.11	.4	.15	2.2	.05	.4	.08	.7
OWN..........................	3.6	.30	2.9	.09	.3	.12	1.8	.03	.3	.07	.5
RENT.........................	1.0	.09	.8	.03	.1	.03	.4	.01	.1	.02	.1
NUMBER OF ROOMS											
1..............................	.7	.05	.5	.02	.1	.01	.2	.03	.2	Q	Q
2..............................	2.0	.12	1.0	.06	.2	.03	.5	.03	.2	.01	.1
3..............................	7.9	.60	5.0	.29	1.3	.14	2.3	.14	1.1	.03	.2
4..............................	16.3	1.46	11.9	.74	2.9	.38	6.2	.26	2.1	.09	.7
5..............................	18.8	2.08	16.4	1.15	4.4	.56	9.0	.28	2.2	.09	.7
6..............................	17.6	2.23	17.6	1.24	4.7	.59	9.6	.34	2.7	.07	.5
7..............................	9.5	1.32	10.7	.70	2.7	.36	5.8	.22	1.8	.04	.3
8 OR MORE......................	8.9	1.46	11.8	.76	2.9	.40	6.5	.26	2.1	.04	.3

See footnotes at end of table.

Table 1.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED											
ALL	29.8	3.26	27.8	1.72	6.5	1.20	18.6	0.24	1.9	0.10	0.8
SOME	16.9	2.17	17.4	1.14	4.7	.44	8.0	.53	4.3	.05	.4
NONE	34.9	3.90	29.6	2.08	8.1	.82	13.5	.78	6.3	.21	1.7
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)											
LESS THAN 600	7.5	.57	5.0	.25	1.1	.11	2.2	.17	1.4	.04	.3
600 TO 999	21.1	1.87	15.2	.96	3.9	.48	7.9	.32	2.6	.10	.6
1,000 TO 1,599	24.0	2.67	21.2	1.45	5.6	.74	11.8	.39	3.1	.10	.8
1,600 TO 1,999	10.0	1.26	10.1	.70	2.7	.36	5.8	.17	1.4	.03	.3
2,000 TO 2,399	7.8	1.08	8.7	.58	2.2	.31	5.0	.16	1.3	.03	.2
2,400 TO 2,999	6.1	.92	7.2	.49	1.9	.22	3.7	.16	1.3	.03	.3
3,000 OR MORE	5.2	.95	7.4	.51	1.9	.24	3.8	.18	1.5	.03	.2
YEAR HOUSE BUILT											
1939 OR EARLIER	23.3	3.08	22.9	1.71	6.9	.50	9.1	.74	6.0	.12	.9
1940 TO 1949	7.5	.89	6.7	.49	2.0	.19	3.1	.18	1.5	.02	.2
1950 TO 1959	13.7	1.67	12.6	.98	3.6	.39	6.5	.27	2.1	.04	.3
1960 TO 1964	7.2	.86	6.7	.48	1.9	.22	3.6	.13	1.0	.03	.2
1965 TO 1969	8.1	.87	7.0	.49	1.9	.27	4.1	.08	.6	.04	.3
1970 TO 1974	10.5	1.02	9.5	.45	1.8	.41	6.4	.09	.7	.07	.6
1975 OR LATER	11.3	.93	9.5	.34	1.3	.48	7.4	.06	.5	.05	.4
OWN/RENT											
OWN	54.3	6.79	54.6	3.58	13.7	1.89	30.3	1.03	8.3	.29	2.3
RENT	27.3	2.53	20.3	1.37	5.6	.57	9.8	.52	4.2	.07	.6

See footnotes at end of table.

Table 1.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
1979 FAMILY INCOME											
LESS THAN $5,000	10.4	1.02	7.8	0.54	2.2	0.21	3.5	0.22	1.8	0.05	0.4
$5,000 TO $9,999	13.9	1.44	11.2	.76	3.0	.32	5.3	.29	2.3	.07	.5
$10,000 TO $14,999	13.8	1.41	11.6	.71	2.9	.36	6.0	.26	2.1	.08	.6
$15,000 TO $19,999	11.9	1.32	10.7	.71	2.7	.37	5.9	.20	1.6	.04	.4
$20,000 TO $24,999	9.9	1.25	9.8	.71	2.7	.35	5.5	.16	1.3	.04	.3
$25,000 TO $34,999	12.4	1.52	12.4	.80	3.1	.44	7.1	.23	1.9	.05	.4
$35,000 OR MORE	9.4	1.35	11.4	.72	2.7	.41	6.9	.19	1.5	.04	.3
TOTAL POOR (100 PERCENT LEVEL)	10.9	1.14	8.7	.65	2.6	.25	4.2	.19	1.5	.05	.4
TOTAL POOR (125 PERCENT LEVEL)	14.8	1.55	11.9	.85	3.4	.34	5.6	.30	2.4	.07	.6
ORIGIN											
WHITE	71.0	8.03	65.0	4.18	16.2	2.21	35.7	1.31	10.5	.33	2.6
BLACK	9.2	1.17	8.8	.70	2.9	.21	3.8	.24	1.9	.02	.2
OTHER	1.4	.12	1.0	.07	.2	.04	.7	.01	-	.01	.1
AGE OF HOUSEHOLD HEAD											
UNDER 25 YEARS	6.6	.57	4.4	.31	1.2	.15	2.4	.07	.6	.03	.2
25 TO 34 YEARS	20.2	2.07	16.9	1.12	4.4	.60	9.7	.27	2.2	.08	.6
35 TO 44 YEARS	14.1	1.78	14.7	.94	3.7	.52	8.5	.25	2.0	.06	.5
45 TO 59 YEARS	18.9	2.45	19.7	1.31	5.1	.64	10.5	.41	3.3	.09	.7
60 YEARS AND OVER	21.8	2.45	19.1	1.25	4.9	.55	9.0	.55	4.4	.10	.8
HOUSEHOLD MEMBERS											
1	15.7	1.36	10.8	.69	2.8	.30	5.0	.32	2.5	.05	.4
2	26.8	2.88	22.9	1.49	5.8	.73	11.9	.54	4.3	.11	.9
3	14.9	1.77	14.3	.93	3.6	.50	8.0	.27	2.1	.07	.6
4	13.4	1.75	14.1	.98	3.9	.49	8.0	.21	1.7	.06	.5
5	6.8	.95	7.8	.52	2.0	.28	4.6	.12	.9	.03	.3
6 OR MORE	4.0	.62	5.0	.32	1.2	.16	2.7	.10	.8	.03	.3

See footnotes at end of table.

Table 1. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
FUEL COMBINATIONS											
USE NATURAL GAS FOR MAIN HEATING	44.6	5.84	36.3	4.77	18.2	1.05	18.0	0.01	0.1	Q	Q
WATER HEAT AND COOK WITH NATURAL GAS	25.1	3.22	19.7	2.72	10.6	.50	9.1	Q	Q	-	-
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY	15.7	2.18	13.4	1.74	6.4	.43	7.1	Q	Q	Q	Q
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS	.9	.10	.8	.07	.3	.03	.4	-	-	-	-
WATER HEAT AND COOK WITH ELECTRICITY	2.6	.31	2.2	.21	.9	.10	1.3	Q	Q	-	-
OTHER	.3	.03	.2	.02	.1	-	.1	Q	Q	Q	Q
USE ELECTRICITY FOR MAIN HEATING	14.3	.86	11.4	.05	.2	.79	11.0	.01	-	0.01	0.1
WATER HEAT AND COOK WITH ELECTRICITY	12.3	.73	10.0	-	-	.72	10.0	-	-	-	-
OTHER	2.0	.13	1.4	.05	.2	.07	1.0	Q	Q	.01	.1
USE FUEL OIL FOR MAIN HEATING	12.6	1.85	18.5	.09	.7	.30	6.0	1.45	11.6	.02	.2
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY	2.9	.48	4.8	Q	Q	.07	1.5	.41	3.3	Q	0
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS	3.3	.51	5.1	.04	.4	.03	1.1	.44	3.5	-	-
WATER HEAT AND COOK WITH ELECTRICITY	3.7	.46	4.7	Q	Q	.14	2.2	.32	2.6	-	-
WATER HEAT AND COOK WITH NATURAL GAS	1.1	.18	1.7	.04	.3	.02	.4	.12	1.0	-	-
OTHER	1.6	.22	2.3	.01	.1	.04	.8	.16	1.3	.01	.1
USE WOOD FOR MAIN HEATING	4.7	.26	3.1	.02	.1	.17	2.5	.03	.2	.04	.3
USE LPG FOR MAIN HEATING	3.7	.39	3.8	-	-	.10	1.7	Q	Q	.28	2.2
USE COAL FOR MAIN HEATING	.3	.01	.2	Q	Q	.01	.1	-	-	Q	Q
OTHER	.9	.09	1.0	Q	Q	.03	.5	.05	.4	.01	.1
NO HEATING	.5	.02	.3	-	-	.01	.3	Q	Q	-	-

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDEC NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Percentage Residential Consumption and Expenditures

Table 2. U.S. Residential Energy Consumption and Expenditures—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSE-HOLDS (MIL-LION)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)
TOTAL HOUSEHOLDS	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
CENSUS REGION AND DIVISION											
NORTHEAST	21.6	26.1	29.9	18.7	24.6	15.9	21.4	70.2	70.3	7.4	9.3
NEW ENGLAND	5.2	6.1	7.5	2.9	4.4	3.9	5.2	20.5	20.6	2.9	3.7
MIDDLE ATLANTIC	16.4	20.0	22.4	15.8	20.2	12.0	16.3	49.7	49.7	Q	5.6
NORTH CENTRAL	25.8	31.4	25.6	40.8	37.1	24.3	24.0	10.0	9.9	41.7	38.9
EAST NORTH CENTRAL	18.1	22.4	18.2	29.8	28.0	16.4	16.5	7.5	7.5	24.4	23.5
WEST NORTH CENTRAL	7.7	9.0	7.4	11.0	9.1	7.9	7.6	2.5	2.4	17.3	15.3
SOUTH	33.0	27.8	31.6	22.5	22.2	43.0	39.8	17.4	17.6	39.9	40.9
SOUTH ATLANTIC	17.2	13.8	17.7	8.4	9.7	21.1	21.1	17.0	17.1	23.8	25.4
EAST SOUTH CENTRAL	6.3	5.1	5.4	4.0	3.7	9.8	7.6	Q	Q	7.6	7.4
WEST SOUTH CENTRAL	9.5	8.9	8.5	10.1	8.8	12.0	11.0	Q	Q	8.5	8.1
WEST	19.5	14.8	12.9	18.0	16.1	16.8	14.7	2.3	2.3	10.9	10.9
MOUNTAIN	5.0	4.6	3.9	5.9	5.0	4.5	4.2	Q	Q	6.8	6.2
PACIFIC	14.5	10.1	9.0	12.1	11.1	12.3	10.5	1.9	1.9	4.1	4.7
AREA TYPE											
URBAN	68.6	72.4	67.2	84.6	85.7	59.6	62.0	68.3	68.4	11.0	11.9
RURAL	31.4	27.6	32.8	15.4	14.3	40.4	38.0	31.7	31.6	89.0	88.1
SMSA											
SMSA	68.1	70.3	68.7	76.1	77.4	63.5	66.2	72.2	72.4	28.2	29.3
NON-SMSA	31.9	29.7	31.3	23.9	22.6	36.5	33.8	27.8	27.6	71.8	70.7
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE											
<2,000 CDD AND >7,000 HDD	10.4	11.4	10.8	10.9	10.4	9.8	9.5	13.9	13.8	18.8	18.3
<2,000 CDD AND 5,500 TO 7,000 HDD	25.7	31.6	27.6	38.0	36.9	21.9	23.3	29.2	29.2	20.5	20.3
<2,000 CDD AND 4,000 TO 5,499 HDD	25.9	27.8	29.7	22.7	26.4	25.4	25.9	49.1	49.1	21.1	20.8
<2,000 CDD AND <4,000 HDD	23.3	18.3	18.0	19.5	17.5	22.7	21.5	6.5	6.6	21.6	21.7
>2,000 CDD AND <4,000 HDD	14.8	11.0	13.9	8.9	8.9	20.2	19.9	1.2	1.3	16.1	18.8

See footnotes at end of table.

Percentage Residential Consumption and Expenditures

Table 2. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
UTILITIES PAID BY HOUSEHOLD											
ALL PAID BY HOUSEHOLD	84.9	87.1	87.1	87.9	86.1	92.8	91.1	74.1	74.1	94.8	94.8
SOME PAID, SOME INCLUDED IN RENT	8.2	7.3	7.1	7.4	8.5	3.4	4.6	14.3	14.3	1.1	1.1
ALL INCLUDED IN RENT	5.1	4.1	4.1	3.6	4.2	2.4	2.9	8.7	8.7	Q	1.8
OTHER	1.8	1.5	1.7	1.2	1.3	1.3	1.5	Q	Q	2.4	2.4
TYPE OF HOUSING STRUCTURE											
SINGLE-FAMILY DETACHED	64.9	70.9	69.7	72.7	69.1	75.6	73.6	58.0	57.9	70.7	70.3
OWN	55.7	62.3	61.4	63.7	60.8	67.0	65.1	51.0	50.9	59.5	58.6
RENT	9.2	8.7	8.3	9.0	8.3	8.6	8.5	7.0	7.0	11.2	11.7
SINGLE-FAMILY ATTACHED	4.0	4.2	4.3	4.3	5.0	3.2	3.7	5.8	5.8	Q	Q
OWN	2.7	3.1	3.2	3.0	3.5	2.1	2.6	5.4	5.3	Q	Q
RENT	1.3	1.1	1.1	1.3	1.5	1.1	1.2	.5	.5	Q	Q
BUILDING WITH 2 TO 4 UNITS	12.2	11.7	10.9	14.1	15.9	7.0	8.2	13.6	13.7	2.6	3.0
OWN	2.4	3.2	3.2	3.5	4.1	1.7	2.3	5.0	5.0	Q	Q
RENT	9.7	8.6	7.7	10.7	11.8	5.3	5.9	8.6	8.7	1.4	1.5
BUILDING WITH 5 OR MORE UNITS	13.2	9.0	10.1	6.6	7.9	8.1	8.9	19.5	19.5	Q	Q
OWN	1.2	1.0	1.3	.6	.8	1.0	1.2	2.8	2.8	-	-
RENT	12.0	7.9	8.8	6.0	7.1	7.0	7.7	16.7	16.7	Q	0
MOBILE HOME	5.7	4.2	4.9	2.3	2.1	6.0	5.5	3.1	3.1	22.6	22.5
OWN	4.4	3.3	3.8	1.7	1.6	4.9	4.4	2.1	2.2	18.0	17.9
RENT	1.3	.9	1.1	.6	.5	1.1	1.1	1.0	1.0	4.6	4.6
NUMBER OF ROOMS											
1	.9	.6	.7	.3	.5	.3	.5	1.8	1.8	Q	Q
2	2.4	1.3	1.3	1.2	1.3	1.0	1.2	1.7	1.7	2.6	2.6
3	9.7	6.5	6.7	6.0	6.7	5.6	5.8	9.1	9.1	7.8	8.2
4	19.9	15.7	15.9	14.9	15.2	15.4	15.4	16.7	16.8	23.5	23.5
5	23.1	22.3	21.9	23.2	22.8	22.9	22.5	17.7	17.7	24.9	24.9
6	21.5	23.9	23.5	25.0	24.5	24.0	23.9	21.7	21.8	18.5	18.4
7	11.6	14.1	14.3	14.1	14.2	14.5	14.5	14.5	14.4	11.4	11.7
8 OR MORE	10.9	15.7	15.7	15.3	14.9	16.3	16.2	16.9	16.7	10.8	10.3

See footnotes at end of table.

Table 2. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED											
ALL	36.5	35.0	37.2	34.7	33.5	48.8	46.4	15.3	15.2	28.7	27.7
SOME	20.7	23.2	23.3	23.1	24.3	17.8	20.0	34.3	34.4	14.2	14.6
NONE	42.8	41.8	39.5	42.1	42.2	33.5	33.6	50.4	50.3	57.1	57.7
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)											
LESS THAN 600	9.1	6.2	6.6	5.2	5.8	4.4	5.4	10.9	10.8	11.3	11.9
600 TO 999	25.8	20.1	20.3	19.5	20.1	19.6	19.7	20.6	20.7	28.1	28.7
1,000 TO 1,599	29.4	28.6	28.4	29.2	28.9	30.0	29.3	25.1	25.2	26.6	26.2
1,600 TO 1,999	12.3	13.6	13.6	14.2	14.1	14.6	14.4	10.9	10.9	9.3	9.2
2,000 TO 2,399	9.5	11.5	11.6	11.7	11.3	12.6	12.4	10.2	10.2	7.8	7.7
2,400 TO 2,999	7.5	9.8	9.6	10.0	9.8	9.1	9.2	10.6	10.5	9.3	9.1
3,000 OR MORE	6.4	10.2	9.9	10.2	10.0	9.6	9.5	11.7	11.7	7.5	7.1
YEAR HOUSE BUILT											
1939 OR EARLIER	28.6	33.0	30.6	34.7	35.8	20.4	22.6	47.9	47.9	32.0	31.9
1940 TO 1949	9.1	9.5	8.9	10.0	10.1	7.7	7.7	11.8	11.8	6.0	6.0
1950 TO 1959	16.8	18.0	16.8	19.8	18.8	15.8	16.2	17.2	17.1	11.6	12.1
1960 TO 1964	8.8	9.2	9.0	9.7	9.7	9.0	8.9	8.4	8.3	7.6	7.8
1965 TO 1969	9.9	9.3	9.3	9.9	9.8	10.9	10.3	5.1	5.1	9.6	9.7
1970 TO 1974	12.9	11.0	12.7	9.2	9.2	16.7	16.0	5.7	5.7	19.9	19.6
1975 OR LATER	13.9	10.0	12.7	6.8	6.6	19.6	18.4	3.9	3.9	13.3	13.0
OWN/RENT											
OWN	66.5	72.8	72.9	72.4	70.8	76.8	75.6	66.2	66.2	79.7	79.1
RENT	33.5	27.2	27.1	27.6	29.2	23.2	24.4	33.8	33.8	20.3	20.9

See footnotes at end of table.

Table 2.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
1979 FAMILY INCOME											
LESS THAN $5,000	12.7	10.9	10.4	11.0	11.2	8.5	8.7	14.2	14.3	12.5	12.6
$5,000 TO $9,999	17.0	15.4	14.9	15.3	15.5	13.2	13.2	18.7	18.7	18.5	18.7
$10,000 TO $14,999	16.9	15.2	15.5	14.4	14.8	14.7	14.9	16.8	16.8	21.9	22.5
$15,000 TO $19,999	14.5	14.2	14.3	14.3	14.2	14.9	14.8	13.2	13.2	12.1	12.4
$20,000 TO $24,999	12.2	13.4	13.1	14.3	14.1	14.1	13.7	10.2	10.2	10.3	10.0
$25,000 TO $34,999	15.1	16.3	16.6	16.1	16.0	17.9	17.6	14.8	14.9	14.7	14.4
$35,000 OR MORE	11.6	14.5	15.2	14.6	14.2	16.6	17.1	12.0	12.0	10.0	9.4
TOTAL POOR (100 PERCENT LEVEL)	13.3	12.2	11.6	13.1	13.3	10.2	10.3	12.4	12.3	14.1	14.2
TOTAL POOR (125 PERCENT LEVEL)	18.1	16.6	15.9	17.1	17.5	13.7	13.9	19.2	19.2	19.1	19.5
ORIGIN											
WHITE	86.9	86.1	86.8	84.5	83.8	89.7	88.9	84.2	84.1	91.3	90.8
BLACK	11.3	12.6	11.8	14.1	14.9	8.6	9.5	15.5	15.5	6.6	6.8
OTHER	1.8	1.3	1.4	1.3	1.3	1.6	1.7	.3	.3	2.1	2.5
AGE OF HOUSEHOLD HEAD											
UNDER 25 YEARS	8.1	6.1	5.9	6.3	6.1	6.3	6.1	4.7	4.7	8.2	8.0
25 TO 34 YEARS	24.7	22.2	22.6	22.7	22.8	24.2	24.1	17.7	17.7	21.8	21.8
35 TO 44 YEARS	17.2	19.1	19.6	19.1	19.1	21.3	21.1	15.9	15.9	16.7	17.0
45 TO 59 YEARS	23.2	26.3	26.3	26.6	26.7	25.8	26.2	26.5	26.5	25.2	25.1
60 YEARS AND OVER	26.7	26.3	25.6	25.3	25.4	22.4	22.5	35.2	35.2	28.1	28.1
HOUSEHOLD MEMBERS											
1	19.3	14.6	14.4	14.1	14.5	12.2	12.6	20.3	20.4	13.4	13.8
2	32.8	30.9	30.6	30.2	30.1	29.7	29.6	34.8	34.7	31.1	30.7
3	18.2	19.0	19.1	18.9	18.6	20.2	19.9	17.2	17.1	20.5	20.3
4	16.4	18.7	18.8	19.9	20.0	19.8	19.9	13.8	13.9	16.7	17.1
5	8.4	10.1	10.4	10.4	10.4	11.4	11.4	7.5	7.5	9.3	9.1
6 OR MORE	5.0	6.7	6.6	6.6	6.3	6.7	6.7	6.4	6.4	9.0	9.0

See footnotes at end of table.

Table 2.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
FUEL COMBINATIONS											
USE NATURAL GAS FOR MAIN HEATING	54.6	62.6	48.5	96.5	94.4	42.9	44.9	0.6	0.6	Q	Q
WATER HEAT AND COOK WITH NATURAL GAS	30.7	34.5	26.4	55.0	54.7	20.2	22.7	Q	Q	-	-
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY	19.2	23.3	18.0	35.3	32.9	17.5	17.6	Q	Q	Q	Q
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS	1.1	1.1	1.0	1.5	1.6	1.2	1.1	-	-	-	-
WATER HEAT AND COOK WITH ELECTRICITY	3.2	3.3	3.0	4.3	4.7	3.9	3.2	Q	Q	-	-
OTHER	.4	.3	.2	.5	.5	.1	.2	Q	Q	Q	Q
USE ELECTRICITY FOR MAIN HEATING	17.5	9.2	15.2	1.0	1.1	32.2	27.4	.4	.4	3.8	3.9
WATER HEAT AND COOK WITH ELECTRICITY	15.0	7.9	13.4	.1	.1	29.5	24.8	.2	.2	.5	.5
OTHER	2.5	1.4	1.8	.9	1.0	2.7	2.6	Q	Q	3.3	3.4
USE FUEL OIL FOR MAIN HEATING	15.4	19.9	24.8	1.8	3.8	12.2	15.0	93.4	93.3	4.3	5.8
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY	3.5	5.1	6.4	Q	Q	2.7	3.7	26.3	26.1	Q	Q
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS	4.0	5.5	6.8	.8	2.1	1.3	2.8	28.3	28.4	-	-
WATER HEAT AND COOK WITH ELECTRICITY	4.5	4.9	6.3	Q	Q	5.7	5.4	20.6	20.5	.3	.4
WATER HEAT AND COOK WITH NATURAL GAS	1.4	2.0	2.2	.9	1.3	.8	1.1	7.8	7.8	-	-
OTHER	2.0	2.4	3.1	.2	.3	1.6	2.0	10.4	10.4	3.7	5.0
USE WOOD FOR MAIN HEATING	5.8	2.8	4.2	.5	.5	6.7	6.1	1.9	1.8	11.1	11.6
USE LPG FOR MAIN HEATING	4.5	4.2	5.1	-	-	4.1	4.1	Q	Q	77.9	74.8
USE COAL FOR MAIN HEATING	.4	.1	.2	Q	Q	.3	.3	.2	.2	Q	Q
OTHER	1.0	.9	1.3	Q	Q	1.1	1.2	3.4	3.6	1.6	2.0
NO HEATING	.6	.2	.5	.1	.1	.3	.7	Q	Q	1.2	1.7

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table 3.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
TYPE OF HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED........	100.0	54.3	28.1	13.6	3.9
OWN.........................	100.0	54.2	28.4	13.6	3.7
RENT........................	100.0	55.3	26.3	13.4	5.1
SINGLE-FAMILY ATTACHED........	100.0	54.3	20.3	23.2	Q
OWN.........................	100.0	51.2	18.4	29.0	Q
RENT........................	100.0	62.8	25.8	7.0	Q
BUILDING WITH 2 TO 4 UNITS....	100.0	64.0	15.9	19.3	.9
OWN.........................	100.0	57.9	14.5	26.1	Q
RENT........................	100.0	66.2	16.3	16.8	.7
BUILDING WITH 5 OR MORE UNITS.........................	100.0	39.0	23.8	36.4	Q
OWN.........................	100.0	29.1	26.3	44.7	-
RENT........................	100.0	40.4	23.5	35.3	Q
MOBILE HOME..................	100.0	29.0	37.8	12.2	21.1
OWN.........................	100.0	28.2	39.5	10.8	21.6
RENT........................	100.0	31.6	31.9	17.2	19.3
NUMBER OF ROOMS					
1............................	100.0	30.6	14.3	52.9	Q
2............................	100.0	49.3	21.3	21.4	8.0
3............................	100.0	49.0	22.8	23.5	4.7
4............................	100.0	50.4	25.9	17.8	5.9
5............................	100.0	55.2	27.1	13.3	4.4
6............................	100.0	55.4	26.4	15.1	3.0
7............................	100.0	52.7	27.1	17.0	3.2
8 OR MORE....................	100.0	51.9	27.5	17.9	2.7
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED					
ALL..........................	100.0	52.7	36.8	7.3	3.2
SOME.........................	100.0	52.8	20.2	24.6	2.4
NONE.........................	100.0	53.4	21.1	20.1	5.3
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)					
LESS THAN 600................	100.0	44.4	19.1	29.4	7.2
600 TO 999...................	100.0	51.5	25.8	17.1	5.5
1,000 TO 1,599...............	100.0	54.1	27.6	14.6	3.6
1,600 TO 1,999...............	100.0	55.6	28.3	13.4	2.7
2,000 TO 2,399...............	100.0	53.8	28.9	14.7	2.6
2,400 TO 2,999...............	100.0	53.8	24.5	18.0	3.7
3,000 OR MORE................	100.0	53.1	24.9	19.1	2.9

See footnotes at end of table.

Table 3. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
YEAR HOUSE BUILT					
1939 OR EARLIER	100.0	55.7	16.3	24.2	3.8
1940 TO 1949	100.0	55.5	21.4	20.6	2.5
1950 TO 1959	100.0	58.4	23.1	15.9	2.5
1960 TO 1964	100.0	56.0	25.7	15.1	3.2
1965 TO 1969	100.0	56.1	30.7	9.2	4.0
1970 TO 1974	100.0	44.2	40.1	8.6	7.1
1975 OR LATER	100.0	36.3	52.0	6.6	5.2
OWN/RENT					
OWN	100.0	52.7	27.8	15.1	4.3
RENT	100.0	53.9	22.5	20.7	2.9
1979 FAMILY INCOME					
LESS THAN $5,000	100.0	53.2	20.7	21.7	4.5
$5,000 TO $9,999	100.0	52.6	22.5	20.2	4.7
$10,000 TO $14,999	100.0	50.2	25.6	18.5	5.7
$15,000 TO $19,999	100.0	53.4	27.8	15.5	3.3
$20,000 TO $24,999	100.0	56.6	27.8	12.6	3.0
$25,000 TO $34,999	100.0	52.4	29.0	15.1	3.5
$35,000 OR MORE	100.0	53.3	30.2	13.8	2.7
TOTAL POOR (100 PERCENT LEVEL)	100.0	56.6	22.0	16.8	4.5
TOTAL POOR (125 PERCENT LEVEL)	100.0	54.6	21.7	19.2	4.5
ORIGIN					
WHITE	100.0	52.1	27.5	16.3	4.1
BLACK	100.0	59.4	18.1	20.5	2.1
OTHER	100.0	55.6	33.8	4.4	6.2
AGE OF HOUSEHOLD HEAD					
UNDER 25 YEARS	100.0	54.6	27.3	12.9	5.3
25 TO 34 YEARS	100.0	54.2	28.7	13.2	3.8
35 TO 44 YEARS	100.0	53.2	29.5	13.9	3.4
45 TO 59 YEARS	100.0	53.5	25.9	16.8	3.7
60 YEARS AND OVER	100.0	51.1	22.5	22.3	4.2
HOUSEHOLD MEMBERS					
1	100.0	51.1	22.0	23.2	3.6
2	100.0	51.9	25.4	18.8	3.9
3	100.0	52.7	28.1	15.0	4.2
4	100.0	56.2	28.0	12.3	3.5
5	100.0	54.4	29.7	12.3	3.6
6 OR MORE	100.0	52.2	26.5	16.0	5.3

See footnotes at end of table.

Percentage Residential Proportionate Consumption

Table 3.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
FUEL COMBINATIONS					
USE NATURAL GAS FOR MAIN HEATING........................	100.0	81.8	18.1	0.2	Q
WATER HEAT AND COOK WITH NATURAL GAS..................	100.0	84.5	15.4	Q	-
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY...	100.0	80.1	19.8	Q	Q
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS...	100.0	72.5	27.5	-	-
WATER HEAT AND COOK WITH ELECTRICITY..................	100.0	68.7	30.9	Q	-
OTHER........................	100.0	81.9	11.9	6.1	Q
USE ELECTRICITY FOR MAIN HEATING........................	100.0	5.8	91.9	.6	1.6
WATER HEAT AND COOK WITH ELECTRICITY..................	100.0	.7	98.7	.4	.2
OTHER........................	100.0	35.6	52.8	Q	9.5
USE FUEL OIL FOR MAIN HEATING........................	100.0	4.8	16.1	78.2	.8
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY.......	100.0	Q	14.1	85.4	Q
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS.......	100.0	7.3	6.5	86.2	-
WATER HEAT AND COOK WITH ELECTRICITY..................	100.0	Q	30.3	69.4	.2
WATER HEAT AND COOK WITH NATURAL GAS..................	100.0	23.7	10.5	65.9	-
OTHER........................	100.0	3.5	17.9	72.6	6.0
USE WOOD FOR MAIN HEATING.....	100.0	9.4	63.8	11.3	15.6
USE LPG FOR MAIN HEATING......	100.0	-	26.2	Q	73.0
USE COAL FOR MAIN HEATING.....	100.0	13.0	64.3	20.5	Q
OTHER........................	100.0	Q	31.3	61.7	6.8
NO HEATING.....................	100.0	23.3	50.4	Q	24.8

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Percentage Residential Proportionate Expenditures

Table 4. U.S. Residential Proportionate Energy Expenditures for Fuels—April 1980 Through March 1981 (Percent of Total Dollars)

HOUSEHOLD CHARACTERISTICS	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
TOTAL HOUSEHOLDS................	100.0	25.8	53.7	16.7	3.9
CENSUS REGION AND DIVISION					
NORTHEAST......................	100.0	21.2	38.4	39.2	1.2
NEW ENGLAND..................	100.0	15.0	37.2	45.9	1.9
MIDDLE ATLANTIC..............	100.0	23.2	38.9	36.9	1.0
NORTH CENTRAL..................	100.0	37.4	50.3	6.4	5.9
EAST NORTH CENTRAL..........	100.0	39.7	48.5	6.9	5.0
WEST NORTH CENTRAL..........	100.0	31.7	54.9	5.4	8.0
SOUTH..........................	100.0	18.1	67.6	9.3	5.0
SOUTH ATLANTIC..............	100.0	14.1	64.1	16.2	5.5
EAST SOUTH CENTRAL..........	100.0	17.6	75.8	Q	5.3
WEST SOUTH CENTRAL..........	100.0	26.7	69.5	Q	3.7
WEST...........................	100.0	32.3	61.5	2.9	3.3
MOUNTAIN.....................	100.0	33.3	58.8	Q	6.2
PACIFIC......................	100.0	31.9	62.6	3.5	2.0
AREA TYPE					
URBAN..........................	100.0	32.9	49.5	17.0	.7
RURAL..........................	100.0	11.2	62.3	16.1	10.4
SMSA					
SMSA...........................	100.0	29.1	51.7	17.6	1.6
NON-SMSA.......................	100.0	18.6	57.9	14.7	8.7
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)--LONG-TERM AVERAGE					
<2,000 CDD AND >7,000 HDD.....	100.0	24.9	47.2	21.4	6.6
<2,000 CDD AND 5,500 TO 7,000 HDD............	100.0	34.4	45.2	17.6	2.8
<2,000 CDD AND 4,000 TO 5,499 HDD............	100.0	22.9	46.8	27.6	2.7
<2,000 CDD AND <4,000 HDD.....	100.0	25.1	64.1	6.2	4.7
>2,000 CDD AND <4,000 HDD.....	100.0	16.5	76.7	1.5	5.2
UTILITIES PAID BY HOUSEHOLD					
ALL PAID BY HOUSEHOLD.........	100.0	25.5	56.1	14.2	4.2
SOME PAID, SOME INCLUDED IN RENT...........................	100.0	31.1	34.6	33.8	.6
ALL INCLUDED IN RENT..........	100.0	25.9	37.5	35.0	1.6
OTHER..........................	100.0	19.3	46.5	Q	5.5

See footnotes at end of table.

Table 4.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
TYPE OF HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED........	100.0	25.6	56.7	13.9	3.9
OWN.........................	100.0	25.6	56.9	13.8	3.7
RENT........................	100.0	25.8	54.8	14.0	5.4
SINGLE-FAMILY ATTACHED........	100.0	29.5	46.2	22.3	Q
OWN.........................	100.0	27.9	43.0	27.7	Q
RENT........................	100.0	33.8	55.3	6.9	Q
BUILDING WITH 2 TO 4 UNITS....	100.0	37.7	40.4	20.9	1.0
OWN.........................	100.0	33.7	38.2	26.3	Q
RENT........................	100.0	39.3	41.3	18.7	.7
BUILDING WITH 5 OR MORE UNITS.....................	100.0	20.0	47.1	32.2	Q
OWN.........................	100.0	14.8	49.4	35.8	-
RENT........................	100.0	20.8	46.7	31.7	Q
MOBILE HOME...................	100.0	11.1	60.5	10.7	17.8
OWN.........................	100.0	10.7	61.8	9.4	18.1
RENT........................	100.0	12.5	55.7	15.2	16.6
NUMBER OF ROOMS					
1.............................	100.0	18.8	35.7	43.7	Q
2.............................	100.0	24.2	47.6	20.7	7.6
3.............................	100.0	25.8	46.6	22.8	4.8
4.............................	100.0	24.7	52.0	17.6	5.7
5.............................	100.0	26.8	55.3	13.5	4.4
6.............................	100.0	26.9	54.6	15.5	3.0
7.............................	100.0	25.6	54.4	16.8	3.2
8 OR MORE.....................	100.0	24.4	55.3	17.7	2.5
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED					
ALL...........................	100.0	23.3	67.0	6 8	2.9
SOME..........................	100.0	26.9	46.0	24.7	2.4
NONE..........................	100.0	27.5	45.6	21.3	5.6
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)					
LESS THAN 600.................	100.0	22.4	43.4	27.2	6.9
600 TO 999....................	100.0	25.5	52.0	17.0	5.5
1,000 TO 1,599................	100.0	26.2	55.4	14.8	3.6
1,600 TO 1,999................	100.0	26.8	57.2	13.4	2.6
2,000 TO 2,399................	100.0	25.2	57.5	14.7	2.6
2,400 TO 2,999................	100.0	26.3	51.7	18.3	3.7
3,000 OR MORE.................	100.0	26.1	51.3	19.8	2.8

See footnotes at end of table.

Percentage Residential Proportionate Expenditures

Table 4. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
YEAR HOUSE BUILT					
1939 OR EARLIER	100.0	30.2	39.6	26.2	4.0
1940 TO 1949	100.0	29.2	46.3	22.0	2.6
1950 TO 1959	100.0	28.8	51.5	17.0	2.8
1960 TO 1964	100.0	27.9	53.2	15.6	3.4
1965 TO 1969	100.0	27.3	59.5	9.2	4.0
1970 TO 1974	100.0	18.8	67.7	7.5	6.0
1975 OR LATER	100.0	13.3	77.6	5.2	4.0
OWN/RENT					
OWN	100.0	25.0	55.6	15.1	4.2
RENT	100.0	27.8	48.4	20.8	3.0
1979 FAMILY INCOME					
LESS THAN $5,000	100.0	27.8	44.7	22.8	4.7
$5,000 TO $9,999	100.0	26.7	47.5	20.9	4.8
$10,000 TO $14,999	100.0	24.7	51.6	18.1	5.6
$15,000 TO $19,999	100.0	25.6	55.6	15.4	3.4
$20,000 TO $24,999	100.0	27.9	56.1	13.0	3.0
$25,000 TO $34,999	100.0	24.8	56.9	14.9	3.3
$35,000 OR MORE	100.0	24.1	60.3	13.2	2.4
TOTAL POOR (100 PERCENT LEVEL)	100.0	29.7	47.9	17.7	4.7
TOTAL POOR (125 PERCENT LEVEL)	100.0	28.3	46.8	20.2	4.7
ORIGIN					
WHITE	100.0	24.9	54.9	16.2	4.0
BLACK	100.0	32.7	43.2	21.9	2.2
OTHER	100.0	23.9	65.0	4.1	6.9
AGE OF HOUSEHOLD HEAD					
UNDER 25 YEARS	100.0	26.5	55.1	13.2	5.2
25 TO 34 YEARS	100.0	26.0	57.3	13.0	3.7
35 TO 44 YEARS	100.0	25.2	57.9	13.6	3.3
45 TO 59 YEARS	100.0	26.1	53.4	16.8	3.7
60 YEARS AND OVER	100.0	25.6	47.2	23.0	4.2
HOUSEHOLD MEMBERS					
1	100.0	26.0	46.7	23.6	3.7
2	100.0	25.4	51.8	18.9	3.9
3	100.0	25.1	55.9	14.9	4.1
4	100.0	27.4	56.7	12.3	3.5
5	100.0	25.8	58.8	12.0	3.4
6 OR MORE	100.0	24.6	54.0	16.2	5.3

See footnotes at end of table.

Table 4.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
FUEL COMBINATIONS					
USE NATURAL GAS FOR MAIN HEATING..........................	100.0	50.2	49.6	0.2	Q
WATER HEAT AND COOK WITH NATURAL GAS....................	100.0	53.5	46.3	Q	-
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY...	100.0	47.2	52.7	Q	Q
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS...	100.0	40.3	59.7	-	-
WATER HEAT AND COOK WITH ELECTRICITY..................	100.0	41.1	58.4	Q	-
OTHER.........................	100.0	54.6	37.8	7.4	Q
USE ELECTRICITY FOR MAIN HEATING.........................	100.0	1.9	96.7	.4	1.0
WATER HEAT AND COOK WITH ELECTRICITY..................	100.0	.2	99.4	.2	.2
OTHER.........................	100.0	14.4	76.8	Q	7.2
USE FUEL OIL FOR MAIN HEATING.........................	100.0	3.9	32.4	62.8	.9
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY.......	100.0	Q	31.4	68.2	Q
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS.......	100.0	8.1	22.1	69.9	-
WATER HEAT AND COOK WITH ELECTRICITY..................	100.0	Q	45.6	54.2	.2
WATER HEAT AND COOK WITH NATURAL GAS..................	100.0	15.5	25.6	58.9	-
OTHER.........................	100.0	2.2	35.1	56.5	6.3
USE WOOD FOR MAIN HEATING.....	100.0	3.3	78.8	7.3	10.7
USE LPG FOR MAIN HEATING......	100.0	-	43.2	Q	56.2
USE COAL FOR MAIN HEATING.....	100.0	6.3	80.1	12.3	Q
OTHER.........................	100.0	Q	49.0	45.1	5.7
NO HEATING....................	100.0	3.8	81.7	Q	14.0

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Average Residential Fuel Consumption

Table 5. U.S. Average Residential Energy Consumption of All Fuels Used in the Household, by Main Heating Fuel Type—April 1980 Through March 1981

(Million Btu per Household)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
TOTAL HOUSEHOLDS	114	131	61	59	145	105
CENSUS REGION AND DIVISION						
NORTHEAST	138	146	52	64	158	101
NEW ENGLAND	132	131	45	57	161	Q
MIDDLE ATLANTIC	139	149	54	66	156	93
NORTH CENTRAL	139	156	65	70	132	139
EAST NORTH CENTRAL	141	160	62	70	132	141
WEST NORTH CENTRAL	134	146	79	68	133	135
SOUTH	96	122	63	55	123	87
SOUTH ATLANTIC	92	125	59	53	124	82
EAST SOUTH CENTRAL	92	122	71	57	101	97
WEST SOUTH CENTRAL	107	121	65	58	Q	92
WEST	86	97	51	55	111	95
MOUNTAIN	105	123	46	59	Q	94
PACIFIC	80	88	54	54	110	99
AREA TYPE						
URBAN	120	130	56	51	152	71
RURAL	101	138	67	67	133	111
SMSA						
SMSA	118	129	57	54	150	92
NON-SMSA	107	135	70	64	134	111
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE						
<2,000 CDD AND >7,000 HDD	125	147	70	59	142	133
<2,000 CDD AND 5,500 TO 7,000 HDD	141	157	57	68	155	119
<2,000 CDD AND 4,000 TO 5,499 HDD	122	141	65	61	147	124
<2,000 CDD AND <4,000 HDD	90	99	62	49	125	93
>2,000 CDD AND <4,000 HDD	85	110	59	34	90	82

See footnotes at end of table.

Average Residential Fuel Consumption

Table 5.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
UTILITIES PAID BY HOUSEHOLD						
ALL PAID BY HOUSEHOLD.........	117	137	65	61	147	106
SOME PAID, SOME INCLUDED IN RENT.........................	101	96	38	36	139	122
ALL INCLUDED IN RENT..........	91	92	35	33	141	71
OTHER.........................	95	97	48	30	145	105
TYPE OF HOUSING STRUCTURE						
SINGLE-FAMILY DETACHED........	125	145	77	71	146	115
OWN........................	128	147	77	72	149	116
RENT.......................	108	129	74	69	131	111
SINGLE-FAMILY ATTACHED........	118	115	60	54	170	158
OWN........................	128	117	69	57	173	Q
RENT.......................	98	111	53	53	146	Q
BUILDING WITH 2 TO 4 UNITS....	110	114	44	44	156	72
OWN........................	148	162	Q	62	177	Q
RENT.......................	101	105	44	43	146	69
BUILDING WITH 5 OR MORE UNITS.........................	77	78	38	27	141	Q
OWN........................	97	72	57	-	Q	-
RENT.......................	75	79	36	27	135	Q
MOBILE HOME...................	84	106	54	58	94	87
OWN........................	84	107	55	64	92	88
RENT.......................	85	101	50	39	98	86
NUMBER OF ROOMS						
1.............................	71	45	Q	Q	116	Q
2.............................	60	69	29	37	105	70
3.............................	76	89	34	31	125	76
4.............................	90	99	48	52	128	92
5.............................	110	127	64	62	135	105
6.............................	127	143	74	75	152	118
7.............................	139	160	81	85	158	143
8 OR MORE.....................	164	193	98	87	182	173

See footnotes at end of table.

Table 5.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED						
ALL	109	132	63	-	141	109
SOME	128	139	51	-	154	89
NONE	112	126	-	59	141	108
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)						
LESS THAN 600	77	81	30	33	124	78
600 TO 999	89	99	42	50	129	89
1,000 TO 1,599	111	128	61	65	137	109
1,600 TO 1,999	126	146	74	70	142	139
2,000 TO 2,399	138	160	91	83	168	119
2,400 TO 2,999	149	171	91	62	160	139
3,000 OR MORE	182	209	104	86	203	207
YEAR HOUSE BUILT						
1939 OR EARLIER	132	141	75	59	154	125
1940 TO 1949	119	126	74	52	139	97
1950 TO 1959	122	131	72	52	138	105
1960 TO 1964	119	130	68	66	143	97
1965 TO 1969	108	126	59	62	139	81
1970 TO 1974	97	123	59	65	132	107
1975 OR LATER	82	118	58	51	124	98
OWN/RENT						
OWN	125	144	73	70	150	107
RENT	93	104	42	43	135	98

See footnotes at end of table.

Table 5.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
1979 FAMILY INCOME						
LESS THAN $5,000	98	111	43	51	135	92
$5,000 TO $9,999	104	117	49	52	144	89
$10,000 TO $14,999	102	118	54	48	132	103
$15,000 TO $19,999	112	128	57	59	145	103
$20,000 TO $24,999	126	143	71	77	148	125
$25,000 TO $34,999	123	142	66	67	151	118
$35,000 OR MORE	143	161	82	71	172	139
TOTAL POOR (100 PERCENT LEVEL)	105	123	48	57	138	92
TOTAL POOR (125 PERCENT LEVEL)	105	121	48	57	138	95
ORIGIN						
WHITE	113	130	61	60	143	106
BLACK	128	138	54	49	157	97
OTHER	84	106	66	57	128	Q
AGE OF HOUSEHOLD HEAD						
UNDER 25 YEARS	85	103	41	44	136	94
25 TO 34 YEARS	103	121	58	54	135	101
35 TO 44 YEARS	126	148	79	71	143	106
45 TO 59 YEARS	129	146	71	67	152	122
60 YEARS AND OVER	112	123	56	59	147	101
HOUSEHOLD MEMBERS						
1	86	95	43	37	133	82
2	108	122	53	54	139	101
3	119	135	72	63	152	102
4	131	153	77	74	145	114
5	138	163	94	76	160	143
6 OR MORE	154	175	92	101	192	151

NOTE: AS AN EXAMPLE OF HOW TO READ THIS TABLE, THE VALUE "131" UNDER NATURAL GAS REPRESENTS THE AVERAGE BTU CONSUMPTION FOR ALL THE FUELS USED BY A HOUSEHOLD IF THE MAIN HEATING FUEL WAS NATURAL GAS. GASOLINE, WOOD, COAL AND OTHER MINOR FUELS ARE NOT INCLUDED. A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Average Residential Fuel Expenditures

Table 6. U.S. Average Residential Energy Expenditures for All Fuels Used in the Household, by Main Heating Fuel Type—April 1980 Through March 1981
(Dollars per Household)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING:				
		NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDITIONING	WITHOUT AIR CONDITIONING		
TOTAL HOUSEHOLDS................	917	815	839	674	1458	1041
CENSUS REGION AND DIVISION						
NORTHEAST......................	1268	1026	987	997	1580	1137
NEW ENGLAND..................	1311	1023	855	1135	1606	Q
MIDDLE ATLANTIC..............	1254	1027	1022	962	1569	1032
NORTH CENTRAL..................	910	861	806	997	1309	1278
EAST NORTH CENTRAL...........	921	881	755	1017	1281	1329
WEST NORTH CENTRAL...........	883	814	980	793	1393	1211
SOUTH..........................	877	827	873	769	1303	921
SOUTH ATLANTIC...............	942	860	915	851	1312	895
EAST SOUTH CENTRAL...........	781	773	833	683	981	954
WEST SOUTH CENTRAL...........	823	825	807	453	Q	957
WEST...........................	604	613	573	398	892	872
MOUNTAIN.....................	706	696	712	655	Q	822
PACIFIC......................	568	585	468	375	881	1118
AREA TYPE						
URBAN..........................	898	811	761	502	1501	820
RURAL..........................	959	835	944	858	1381	1076
SMSA						
SMSA...........................	924	817	818	577	1503	967
NON-SMSA.......................	901	805	890	795	1357	1074
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE						
<2,000 CDD AND >7,000 HDD.....	951	803	983	862	1379	1215
<2,000 CDD AND 5,500 TO 7,000 HDD............	988	874	746	958	1548	1121
<2,000 CDD AND 4,000 TO 5,499 HDD............	1052	941	921	571	1479	1190
<2,000 CDD AND <4,000 HDD.....	707	650	756	528	1276	931
>2,000 CDD AND <4,000 HDD.....	861	831	885	556	1223	909

See footnotes at end of table.

Average Residential Fuel Expenditures

**Table 6.
(Continued)**

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
UTILITIES PAID BY HOUSEHOLD						
ALL PAID BY HOUSEHOLD..........	941	855	896	717	1484	1053
SOME PAID, SOME INCLUDED IN RENT..........................	791	588	476	314	1371	1121
ALL INCLUDED IN RENT..........	745	578	452	288	1355	654
OTHER..........................	837	669	608	331	1477	945
TYPE OF HOUSING STRUCTURE						
SINGLE-FAMILY DETACHED........	985	889	1055	869	1493	1111
OWN..........................	1010	910	1071	890	1519	1116
RENT.........................	830	753	876	760	1334	1085
SINGLE-FAMILY ATTACHED........	985	795	871	705	1589	Q
OWN..........................	1074	818	1048	912	1610	Q
RENT.........................	799	749	Q	656	1420	Q
BUILDING WITH 2 TO 4 UNITS....	822	714	615	386	1536	749
OWN..........................	1190	1070	655	323	1786	Q
RENT.........................	729	641	603	391	1415	675
BUILDING WITH 5 OR MORE UNITS..........................	703	519	531	265	1384	Q
OWN..........................	981	622	765	-	Q	-
RENT.........................	674	508	505	265	1326	Q
MOBILE HOME....................	789	684	728	615	1011	912
OWN..........................	790	687	739	651	979	924
RENT.........................	786	677	605	495	1073	863
NUMBER OF ROOMS						
1..............................	688	366	459	Q	1212	Q
2..............................	504	424	381	347	1062	690
3..............................	631	543	484	310	1207	790
4..............................	730	615	652	526	1267	916
5..............................	869	780	882	749	1368	1030
6..............................	1003	891	1012	973	1550	1199
7..............................	1132	1016	1123	991	1588	1334
8 OR MORE......................	1320	1190	1377	1020	1837	1648

See footnotes at end of table.

Table 6. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING:				
		NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDITIONING	WITHOUT AIR CONDITIONING		
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED						
ALL	934	890	869	-	1473	1110
SOME	1030	868	684	-	1580	944
NONE	847	720	-	674	1376	1031
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)						
LESS THAN 600	669	513	437	316	1223	784
600 TO 999	722	619	577	516	1297	912
1,000 TO 1,599	887	795	849	729	1399	1068
1,600 TO 1,999	1014	927	1015	1029	1471	1297
2,000 TO 2,399	1116	992	1245	1067	1683	1205
2,400 TO 2,999	1167	1052	1245	749	1592	1346
3,000 OR MORE	1417	1261	1371	1025	2004	1866
YEAR HOUSE BUILT						
1939 OR EARLIER	981	804	899	619	1512	1170
1940 TO 1949	898	767	945	540	1392	930
1950 TO 1959	920	817	856	596	1429	1022
1960 TO 1964	933	846	890	736	1451	999
1965 TO 1969	858	834	780	657	1425	826
1970 TO 1974	900	847	818	849	1369	1130
1975 OR LATER	840	802	847	568	1395	956
OWN/RENT						
OWN	1004	900	1013	845	1523	1059
RENT	742	680	574	447	1338	973

See footnotes at end of table.

Average Residential Fuel Expenditures

Table 6.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
1979 FAMILY INCOME						
LESS THAN $5,000	754	650	564	543	1310	885
$5,000 TO $9,999	807	684	662	607	1397	896
$10,000 TO $14,999	837	736	739	604	1299	1022
$15,000 TO $19,999	900	813	772	672	1467	1011
$20,000 TO $24,999	986	890	970	789	1510	1207
$25,000 TO $34,999	1005	896	883	798	1555	1209
$35,000 OR MORE	1206	1065	1226	923	1855	1360
TOTAL POOR (100 PERCENT LEVEL)	797	725	673	640	1349	893
TOTAL POOR (125 PERCENT LEVEL)	807	710	658	641	1349	942
ORIGIN						
WHITE	915	815	840	683	1449	1042
BLACK	959	836	786	680	1522	1002
OTHER	716	628	889	347	1058	Q
AGE OF HOUSEHOLD HEAD						
UNDER 25 YEARS	669	614	567	430	1314	910
25 TO 34 YEARS	838	755	805	635	1386	1026
35 TO 44 YEARS	1043	945	1110	766	1500	1094
45 TO 59 YEARS	1039	930	966	878	1552	1185
60 YEARS AND OVER	877	738	753	641	1425	968
HOUSEHOLD MEMBERS						
1	686	565	595	383	1271	800
2	855	752	724	631	1382	981
3	962	849	991	678	1553	1031
4	1053	986	1119	855	1495	1142
5	1138	1045	1226	965	1720	1371
6 OR MORE	1231	1044	1222	1289	1966	1519

NOTE: AS AN EXAMPLE OF HOW TO READ THIS TABLE, THE VALUE "815" UNDER NATURAL GAS REPRESENTS THE AVERAGE DOLLAR EXPENDITURE FOR ALL THE FUELS USED BY A HOUSEHOLD IF THE MAIN HEATING FUEL WAS NATURAL GAS. GASOLINE, WOOD, COAL AND OTHER MINOR FUELS ARE NOT INCLUDED. A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Residential Natural Gas Consumption and Expenditures

Table 7. U.S. Residential Natural Gas Consumption and Expenditures—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS................	51.6	4.84	4.94	19.3	3.99	94	96	374
CENSUS REGION AND DIVISION								
NORTHEAST......................	10.9	.90	.92	4.7	5.25	83	85	436
NEW ENGLAND..................	1.9	.14	.14	.8	6.08	75	76	455
MIDDLE ATLANTIC..............	9.0	.77	.78	3.9	5.10	85	87	432
NORTH CENTRAL..................	15.5	1.97	2.02	7.2	3.63	127	130	461
EAST NORTH CENTRAL..........	10.9	1.44	1.47	5.4	3.75	132	135	495
WEST NORTH CENTRAL..........	4.6	.53	.54	1.8	3.30	115	118	381
SOUTH..........................	13.3	1.09	1.11	4.3	3.92	82	84	322
SOUTH ATLANTIC..............	4.9	.41	.42	1.9	4.58	84	85	383
EAST SOUTH CENTRAL..........	2.3	.19	.20	.7	3.65	83	85	302
WEST SOUTH CENTRAL..........	6.1	.49	.50	1.7	3.48	80	82	280
WEST...........................	11.9	.87	.89	3.1	3.57	73	75	261
MOUNTAIN....................	3.0	.28	.29	1.0	3.38	96	98	324
PACIFIC.....................	8.9	.59	.60	2.1	3.67	65	67	240
AREA TYPE								
URBAN..........................	44.6	4.10	4.18	16.5	4.04	92	94	371
RURAL..........................	7.1	.75	.76	2.8	3.69	105	108	389
SMSA								
SMSA...........................	40.5	3.69	3.76	14.9	4.05	91	93	369
NON-SMSA.......................	11.2	1.16	1.18	4.4	3.77	103	106	390
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE								
<2,000 CDD AND >7,000 HDD.....	4.4	.53	.54	2.0	3.81	118	121	451
<2,000 CDD AND 5,500 TO 7,000 HDD............	15.0	1.84	1.88	7.1	3.86	123	125	474
<2,000 CDD AND 4,000 TO 5,499 HDD............	12.8	1.10	1.12	5.1	4.63	86	88	399
<2,000 CDD AND <4,000 HDD.....	13.1	.94	.96	3.4	3.58	72	74	258
>2,000 CDD AND <4,000 HDD.....	6.4	.43	.44	1.7	3.97	68	70	271
GAS PAID BY HOUSEHOLD								
YES............................	42.3	4.27	4.36	16.8	3.92	101	103	396
NO.............................	9.3	.57	.58	2.5	4.46	61	62	272

See footnotes at end of table.

Residential Natural Gas Consumption and Expenditures

Table 7. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TYPE OF HOUSING STRUCTURE								
SINGLE-FAMILY DETACHED	32.3	3.52	3.59	13.3	3.79	109	111	413
OWN	27.8	3.08	3.15	11.7	3.81	111	113	422
RENT	4.4	.44	.45	1.6	3.67	98	100	361
SINGLE-FAMILY ATTACHED	2.6	.21	.21	1.0	4.61	80	81	367
OWN	1.9	.14	.15	.7	4.67	77	78	358
RENT	.7	.06	.07	.3	4.48	87	88	388
BUILDING WITH 2 TO 4 UNITS	7.9	.68	.70	3.1	4.49	87	88	388
OWN	1.5	.17	.17	.8	4.79	113	115	539
RENT	6.4	.52	.53	2.3	4.39	81	82	354
BUILDING WITH 5 OR MORE UNITS	7.4	.32	.33	1.5	4.76	43	44	205
OWN	.8	.03	.03	.1	5.27	34	35	181
RENT	6.6	.29	.30	1.4	4.71	44	45	207
MOBILE HOME	1.4	.11	.11	.4	3.67	77	79	283
OWN	1.1	.08	.09	.3	3.66	79	81	290
RENT	.4	.03	.03	.1	3.71	71	73	264
NUMBER OF ROOMS								
1	.6	.02	.02	.1	6.07	26	26	157
2	1.3	.06	.06	.2	4.17	43	44	180
3	5.0	.29	.29	1.3	4.46	58	59	257
4	10.1	.72	.74	2.9	4.06	72	73	291
5	12.0	1.12	1.15	4.4	3.91	94	96	365
6	11.6	1.21	1.24	4.7	3.91	104	106	408
7	5.6	.68	.70	2.7	4.03	121	124	487
8 OR MORE	5.4	.74	.76	2.9	3.87	139	142	537
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED								
ALL	18.5	1.68	1.72	6.5	3.85	91	93	350
SOME	11.5	1.12	1.14	4.7	4.18	97	99	406
NONE	21.6	2.04	2.08	8.1	3.99	94	96	377

See footnotes at end of table.

Table 7.
(Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)								
LESS THAN 600	4.8	0.25	0.25	1.1	4.48	52	53	232
600 TO 999	13.6	.94	.96	3.9	4.11	70	71	286
1,000 TO 1,599	15.0	1.42	1.45	5.6	3.94	94	96	371
1,600 TO 1,999	6.4	.69	.70	2.7	3.95	107	109	422
2,000 TO 2,399	4.8	.57	.58	2.2	3.86	118	121	457
2,400 TO 2,999	3.9	.48	.49	1.9	3.91	124	127	486
3,000 OR MORE	3.1	.49	.51	1.9	3.90	157	161	614
YEAR HOUSE BUILT								
1939 OR EARLIER	16.7	1.68	1.71	6.9	4.11	100	102	413
1940 TO 1949	5.4	.48	.49	2.0	4.05	89	91	360
1950 TO 1959	10.0	.96	.98	3.6	3.78	96	98	361
1960 TO 1964	5.0	.47	.48	1.9	3.98	94	96	374
1965 TO 1969	5.1	.48	.49	1.9	3.96	94	96	371
1970 TO 1974	5.3	.44	.45	1.8	4.02	83	85	334
1975 OR LATER	4.0	.33	.34	1.3	3.83	82	84	315
OWN/RENT								
OWN	33.0	3.50	3.58	13.7	3.90	106	108	413
RENT	18.6	1.34	1.37	5.6	4.22	72	73	303
1979 FAMILY INCOME								
LESS THAN $5,000	6.6	.53	.54	2.2	4.09	80	82	327
$5,000 TO $9,999	8.9	.74	.76	3.0	4.02	83	85	334
$10,000 TO $14,999	8.4	.70	.71	2.9	4.11	83	84	339
$15,000 TO $19,999	7.6	.69	.71	2.7	3.95	91	93	361
$20,000 TO $24,999	6.4	.69	.71	2.7	3.93	108	110	423
$25,000 TO $34,999	7.5	.78	.80	3.1	3.94	104	106	408
$35,000 OR MORE	6.1	.71	.72	2.7	3.89	116	118	451
TOTAL POOR (100 PERCENT LEVEL)	7.0	.63	.65	2.6	4.07	90	92	367
TOTAL POOR (125 PERCENT LEVEL)	9.5	.83	.85	3.4	4.07	87	89	353

See footnotes at end of table.

Table 7.
(Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
ORIGIN								
WHITE	43.3	4.09	4.18	16.2	3.95	94	96	373
BLACK	7.5	.68	.70	2.9	4.22	91	93	384
OTHER	.8	.07	.07	.2	3.75	81	83	304
AGE OF HOUSEHOLD HEAD								
UNDER 25 YEARS	4.0	.30	.31	1.2	3.88	76	78	296
25 TO 34 YEARS	12.6	1.10	1.12	4.4	3.99	88	89	349
35 TO 44 YEARS	8.8	.92	.94	3.7	3.99	105	108	420
45 TO 59 YEARS	12.3	1.29	1.31	5.1	4.00	104	106	417
60 YEARS AND OVER	14.0	1.23	1.25	4.9	3.99	88	90	350
HOUSEHOLD MEMBERS								
1	10.3	.68	.69	2.8	4.12	66	67	272
2	16.7	1.46	1.49	5.8	3.96	87	89	347
3	9.3	.91	.93	3.6	3.93	99	101	388
4	8.5	.96	.98	3.9	4.02	113	115	454
5	4.2	.50	.52	2.0	3.99	119	121	474
6 OR MORE	2.6	.32	.32	1.2	3.85	124	126	476
FUEL COMBINATIONS								
USE NATURAL GAS FOR MAIN HEATING	44.6	4.67	4.77	18.2	3.90	105	107	409
WATER HEAT AND COOK WITH NATURAL GAS	25.1	2.66	2.72	10.6	3.96	106	108	421
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY	15.7	1.71	1.74	6.4	3.72	109	111	404
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS	.9	.07	.07	.3	4.15	81	83	335
WATER HEAT AND COOK WITH ELECTRICITY	2.6	.21	.21	.9	4.38	80	81	350
OTHER	.3	.02	.02	.1	4.42	77	78	339
USE ELECTRICITY FOR MAIN HEATING	1.7	.05	.05	.2	4.39	30	30	130
USE FUEL OIL FOR MAIN HEATING	4.8	.09	.09	.7	8.27	18	19	153
USE WOOD FOR MAIN HEATING	.5	.02	.02	.1	4.31	50	51	215
OTHER/NONE	.2	.01	.01	-	4.63	36	36	165

See footnotes at end of table.

Table 7.
(Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
OWNERSHIP OF UTILITY								
PRIVATELY OWNED................	31.4	3.20	3.26	12.8	4.01	102	104	408
UNKNOWN.......................	20.2	1.64	1.68	6.5	3.95	81	83	321
MAIN HEATING EQUIPMENT USING NATURAL GAS								
CENTRAL WARM AIR FURNACE......	28.1	3.14	3.21	11.9	3.80	112	114	425
STEAM OR HOT-WATER SYSTEM.....	5.8	.71	.72	3.2	4.53	122	124	550
FLOOR, WALL OR PIPELESS FURNACE........................	6.0	.44	.45	1.6	3.57	73	75	261
ROOM HEATER....................	4.0	.34	.34	1.3	3.94	83	85	328
NONE/OTHER.....................	7.7	.21	.22	1.3	5.95	28	28	164

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Residential Natural Gas Consumption and Expenditures

Table 8. U.S. Residential Natural Gas Consumption and Expenditures for Households Using or Not Using Natural Gas as Main Heating Fuel—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED:							
	AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU. FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU. FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	44.6	105	107	409	7.1	24	24	152
CENSUS REGION AND DIVISION								
NORTHEAST	6.6	125	128	618	4.3	17	18	153
NEW ENGLAND	1.1	113	115	654	.8	19	20	165
MIDDLE ATLANTIC	5.5	128	131	611	3.5	17	17	150
NORTH CENTRAL	15.0	131	133	472	.5	32	33	151
EAST NORTH CENTRAL	10.4	137	140	511	.5	31	32	150
WEST NORTH CENTRAL	4.5	116	119	383	.1	44	45	160
SOUTH	11.8	88	90	342	1.5	32	32	154
SOUTH ATLANTIC	4.0	95	97	430	.9	28	29	161
EAST SOUTH CENTRAL	2.2	86	88	313	.2	36	36	152
WEST SOUTH CENTRAL	5.6	84	86	291	.5	36	37	142
WEST	11.1	76	77	269	.8	38	39	146
MOUNTAIN	2.9	99	101	331	.1	32	32	137
PACIFIC	8.3	68	69	247	.7	39	40	148
AREA TYPE								
URBAN	37.9	104	106	410	6.7	22	23	149
RURAL	6.7	108	111	399	.4	47	48	203
SMSA								
SMSA	34.1	104	106	410	6.3	22	22	148
NON-SMSA	10.5	108	110	404	.7	39	39	185
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)--LONG-TERM AVERAGE								
<2,000 CDD AND >7,000 HDD	4.3	122	125	464	.2	35	36	172
<2,000 CDD AND 5,500 TO 7,000 HDD	13.5	134	136	509	1.5	22	23	157
<2,000 CDD AND 4,000 TO 5,499 HDD	9.0	114	117	502	3.8	19	19	153
<2,000 CDD AND <4,000 HDD	12.1	75	76	266	1.0	41	41	149
>2,000 CDD AND <4,000 HDD	5.7	73	74	287	.7	26	27	133

See footnotes at end of table.

Table 8. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NOT AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
GAS PAID BY HOUSEHOLD								
YES	37.9	109	112	422	4.5	29	30	172
NO	6.7	79	81	331	2.6	14	15	118
TYPE OF HOUSING STRUCTURE								
SINGLE-FAMILY DETACHED	30.1	115	117	431	2.2	34	35	175
OWN	26.0	116	119	439	1.8	34	34	178
RENT	4.1	104	106	380	.4	36	37	159
SINGLE-FAMILY ATTACHED	1.9	94	96	422	.7	38	39	206
OWN	1.3	95	97	424	.6	36	37	209
RENT	.6	93	95	419	.1	48	49	192
BUILDING WITH 2 TO 4 UNITS	6.6	98	100	429	1.3	25	25	175
OWN	1.1	141	144	652	.3	22	22	175
RENT	5.5	90	92	383	.9	26	26	175
BUILDING WITH 5 OR MORE UNITS	4.6	62	64	261	2.8	12	12	113
OWN	.4	49	50	214	.4	17	17	140
RENT	4.1	64	65	266	2.5	11	11	110
MOBILE HOME	1.4	80	82	295	Q	Q	Q	67
NUMBER OF ROOMS								
1 OR 2 ROOMS	1.2	52	53	216	.7	15	16	103
3	3.7	74	75	307	1.3	13	14	120
4	8.7	80	81	314	1.4	22	22	150
5	10.8	101	103	389	1.2	24	24	149
6	10.4	113	116	437	1.2	29	29	166
7	5.2	128	131	511	.4	31	32	186
8 OR MORE	4.6	154	157	584	.7	43	44	231
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED								
ALL	16.6	98	100	373	1.9	25	25	136
SOME	9.4	114	116	461	2.1	23	24	162
NONE	18.5	106	108	414	3.1	23	24	155

See footnotes at end of table.

Table 8. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)								
LESS THAN 600	3.5	67	68	276	1.3	13	13	118
600 TO 999	11.2	80	82	316	2.4	20	21	145
1,000 TO 1,599	13.5	102	104	396	1.5	25	26	152
1,600 TO 1,999	5.9	115	118	451	.6	23	23	139
2,000 TO 2,399	4.3	127	130	485	.5	44	45	228
2,400 TO 2,999	3.4	136	139	525	.5	35	35	185
3,000 OR MORE	2.8	170	173	656	.3	39	40	213
YEAR HOUSE BUILT								
1939 OR EARLIER	13.3	120	122	476	3.4	25	26	172
1940 TO 1949	4.6	101	103	397	.8	20	20	148
1950 TO 1959	9.1	103	105	384	.9	24	24	140
1960 TO 1964	4.6	101	104	397	.4	Q	Q	125
1965 TO 1969	4.8	97	99	385	.3	29	30	141
1970 TO 1974	4.6	93	95	369	.7	20	21	110
1975 OR LATER	3.6	89	90	337	.4	29	30	129
OWN/RENT								
OWN	29.9	114	116	438	3.2	31	31	178
RENT	14.7	86	88	349	3.9	18	18	131
1979 FAMILY INCOME								
LESS THAN $5,000	5.5	93	95	368	1.2	20	20	137
$5,000 TO $9,999	7.3	97	99	373	1.6	22	22	157
$10,000 TO $14,999	6.9	96	98	385	1.5	20	21	131
$15,000 TO $19,999	6.6	101	103	388	.9	28	28	168
$20,000 TO $24,999	6.0	114	116	443	.5	31	31	172
$25,000 TO $34,999	6.7	113	115	438	.8	30	30	170
$35,000 OR MORE	5.6	124	126	476	.5	25	26	155
TOTAL POOR (100 PERCENT LEVEL)	5.9	103	105	410	1.1	21	22	141
TOTAL POOR (125 PERCENT LEVEL)	7.8	101	104	400	1.8	22	22	147

See footnotes at end of table.

Table 8. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED:							
	AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU. FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU. FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
ORIGIN								
WHITE	38.2	104	106	404	5.1	24	24	146
BLACK	5.7	113	115	454	1.8	23	24	170
OTHER	.7	86	87	319	.1	33	34	147
AGE OF HOUSEHOLD HEAD								
UNDER 25 YEARS	3.5	84	86	320	.5	23	23	133
25 TO 34 YEARS	10.9	97	99	380	1.7	25	25	150
35 TO 44 YEARS	7.7	116	119	456	1.1	26	26	162
45 TO 59 YEARS	10.8	116	118	454	1.5	26	26	163
60 YEARS AND OVER	11.7	101	103	390	2.3	21	21	146
HOUSEHOLD MEMBERS								
1	8.2	79	80	311	2.1	16	16	117
2	14.4	98	100	380	2.3	19	20	136
3	8.3	106	109	411	1.0	31	32	191
4	7.7	121	124	481	.8	35	36	198
5	3.8	129	131	508	.5	39	40	197
6 OR MORE	2.1	142	145	534	.4	29	30	185
OWNERSHIP OF UTILITY								
PRIVATELY OWNED	27.8	111	113	437	3.6	29	30	178
UNKNOWN	16.8	94	96	362	3.5	18	18	125

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDEC NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESICENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Residential Electricity Consumption and Expenditures

Table 9. U.S. Residential Electricity Consumption and Expenditures—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	ELECTRICITY							
	TOTAL AMOUNT CONSUMED (BILLION KWH)	TOTAL AMOUNT CONSUMED (QUADRIL-LION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS................	721	2.46	40.1	5.6	81.6	8.8	30	492
CENSUS REGION AND DIVISION								
NORTHEAST......................	115	.39	8.6	7.5	17.7	6.5	22	487
NEW ENGLAND..................	28	.10	2.1	7.5	4.3	6.5	22	487
MIDDLE ATLANTIC..............	87	.30	6.5	7.5	13.4	6.5	22	487
NORTH CENTRAL..................	176	.60	9.7	5.5	21.1	8.3	28	458
EAST NORTH CENTRAL..........	118	.40	6.6	5.6	14.8	8.0	27	447
WEST NORTH CENTRAL..........	57	.20	3.0	5.3	6.3	9.1	31	485
SOUTH..........................	310	1.06	16.0	5.2	26.9	11.5	39	593
SOUTH ATLANTIC..............	152	.52	8.5	5.6	14.0	10.8	37	604
EAST SOUTH CENTRAL..........	71	.24	3.0	4.3	5.1	13.7	47	592
WEST SOUTH CENTRAL..........	87	.30	4.4	5.1	7.7	11.2	38	572
WEST...........................	121	.41	5.9	4.9	15.9	7.6	26	371
MOUNTAIN....................	32	.11	1.7	5.3	4.1	7.9	27	416
PACIFIC.....................	89	.30	4.2	4.8	11.8	7.5	26	356
AREA TYPE								
URBAN..........................	430	1.47	24.9	5.8	56.0	7.7	26	444
RURAL..........................	292	.99	15.3	5.2	25.6	11.4	39	597
SMSA								
SMSA...........................	458	1.56	26.6	5.8	55.6	8.2	28	478
NON-SMSA.......................	264	.90	13.6	5.1	26.0	10.1	35	522
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)--LONG-TERM AVERAGE								
<2,000 CDD AND >7,000 HDD.....	70	.24	3.8	5.4	8.5	8.3	28	449
<2,000 CDD AND 5,500 TO 7,000 HDD............	158	.54	9.3	5.9	20.9	7.6	26	446
<2,000 CDE AND 4,000 TO 5,499 HDD............	184	.63	10.4	5.7	21.1	8.7	30	493
<2,000 CDD AND <4,000 HDD.....	164	.56	8.6	5.3	19.0	8.6	29	453
>2,000 CDD AND <4,000 HDD.....	146	.50	8.0	5.5	12.1	12.1	41	661

See footnotes at end of table.

Residential Electricity Consumption and Expenditures

Table 9.
(Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY TOTAL AMOUNT CONSUMED (BILLION KWH)	TOTAL AMOUNT CONSUMED (QUADRIL-LION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
ELECTRICITY PAID BY HOUSEHOLD								
YES	693	2.37	38.3	5.5	75.8	9.1	31	506
NO	28	.10	1.8	6.5	5.8	4.8	16	312
TYPE OF HOUSING STRUCTURE								
SINGLE-FAMILY DETACHED	545	1.86	29.6	5.4	53.0	10.3	35	558
OWN	483	1.65	26.1	5.4	45.5	10.6	36	575
RENT	62	.21	3.4	5.5	7.5	8.3	28	455
SINGLE-FAMILY ATTACHED	23	.08	1.5	6.5	3.3	7.1	24	455
OWN	15	.05	1.0	6.7	2.2	6.9	24	462
RENT	8	.03	.5	6.0	1.1	7.4	25	481
BUILDING WITH 2 TO 4 UNITS	51	.17	3.3	6.5	9.9	5.1	17	332
OWN	13	.04	.9	7.2	2.0	6.3	21	455
RENT	38	.13	2.4	6.2	7.9	4.8	16	301
BUILDING WITH 5 OR MORE UNITS	58	.20	3.6	6.1	10.8	5.4	18	331
OWN	7	.03	.5	6.5	1.0	7.5	25	484
RENT	51	.17	3.1	6.1	9.8	5.2	18	315
MOBILE HOME	43	.15	2.2	5.1	4.6	9.3	32	477
OWN	35	.12	1.8	5.0	3.6	9.7	33	488
RENT	8	.03	.4	5.5	1.0	8.0	27	438
NUMBER OF ROOMS								
1	2	.01	.2	8.3	.7	3.0	10	246
2	7	.03	.5	6.4	2.0	3.8	13	240
3	40	.14	2.3	5.8	7.9	5.1	17	294
4	111	.38	6.2	5.6	16.3	6.8	23	380
5	165	.56	9.0	5.5	18.8	8.8	30	481
6	173	.59	9.6	5.6	17.5	9.8	34	548
7	105	.36	5.8	5.6	9.5	11.1	38	616
8 OR MORE	118	.40	6.5	5.5	8.9	13.2	45	730
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED								
ALL	352	1.20	18.6	5.3	29.8	11.8	40	626
SOME	128	.44	8.0	6.3	16.9	7.6	26	474
NONE	241	.82	13.5	5.6	34.9	6.9	24	386

See footnotes at end of table.

Table 9. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY							
	TOTAL AMOUNT CONSUMED (BILLION KWH)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)								
LESS THAN 600	32	0.11	2.2	6.7	7.4	4.3	15	291
600 TO 999	142	.48	7.9	5.6	21.1	6.7	23	376
1,000 TO 1,599	216	.74	11.8	5.4	24.0	9.0	31	491
1,600 TO 1,999	105	.36	5.8	5.5	10.0	10.5	36	580
2,000 TO 2,399	91	.31	5.0	5.5	7.8	11.7	40	642
2,400 TO 2,999	66	.22	3.7	5.6	6.1	10.7	37	604
3,000 OR MORE	69	.24	3.8	5.5	5.2	13.3	45	728
YEAR HOUSE BUILT								
1939 OR EARLIER	147	.50	9.1	6.2	23.3	6.3	22	389
1940 TO 1949	55	.19	3.1	5.6	7.5	7.4	25	415
1950 TO 1959	114	.39	6.5	5.7	13.7	8.3	28	473
1960 TO 1964	65	.22	3.6	5.5	7.2	9.0	31	496
1965 TO 1969	78	.27	4.1	5.3	8.1	9.7	33	510
1970 TO 1974	120	.41	6.4	5.3	10.5	11.4	39	609
1975 OR LATER	142	.48	7.4	5.2	11.3	12.5	43	652
OWN/RENT								
OWN	554	1.89	30.3	5.5	54.3	10.2	35	559
RENT	167	.57	9.8	5.9	27.3	6.1	21	359
1979 FAMILY INCOME								
LESS THAN $5,000	62	.21	3.5	5.7	10.4	5.9	20	337
$5,000 TO $9,999	95	.32	5.3	5.6	13.8	6.9	23	383
$10,000 TO $14,999	106	.36	6.0	5.6	13.8	7.7	26	432
$15,000 TO $19,999	108	.37	5.9	5.5	11.9	9.1	31	501
$20,000 TO $24,999	102	.35	5.5	5.4	9.9	10.2	35	553
$25,000 TO $34,999	129	.44	7.1	5.5	12.4	10.5	36	572
$35,000 OR MORE	119	.41	6.9	5.7	9.4	12.7	43	727
TOTAL POOR (100 PERCENT LEVEL)	74	.25	4.2	5.6	10.9	6.8	23	381
TOTAL POOR (125 PERCENT LEVEL)	99	.34	5.6	5.6	14.7	6.7	23	378
ORIGIN								
WHITE	647	2.21	35.7	5.5	71.0	9.1	31	503
BLACK	62	.21	3.8	6.1	9.2	6.8	23	414
OTHER	12	.04	.7	5.6	1.4	8.3	28	466

See footnotes at end of table.

Table 9. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY TOTAL AMOUNT CONSUMED (BILLION KWH)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
AGE OF HOUSEHOLD HEAD								
UNDER 25 YEARS.................	45	0.15	2.4	5.4	6.6	6.8	23	369
25 TO 34 YEARS.................	174	.60	9.7	5.6	20.2	8.6	29	480
35 TO 44 YEARS.................	154	.52	8.5	5.5	14.1	10.9	37	604
45 TO 59 YEARS.................	186	.64	10.5	5.6	18.9	9.8	34	555
60 YEARS AND OVER.............	162	.55	9.0	5.6	21.8	7.4	25	414
HOUSEHOLD MEMBERS								
1............................	88	.30	5.0	5.7	15.7	5.6	19	320
2............................	214	.73	11.9	5.5	26.8	8.0	27	443
3............................	146	.50	8.0	5.5	14.9	9.8	33	538
4............................	143	.49	8.0	5.6	13.4	10.7	36	597
5............................	82	.28	4.6	5.6	6.8	12.0	41	668
6 OR MORE.....................	48	.16	2.7	5.6	4.0	12.0	41	664
TYPE OF ELECTRIC UTILITY								
PRIVATELY OWNED...............	448	1.53	26.0	5.8	51.9	8.6	29	500
PUBLICLY OWNED................	99	.34	4.5	4.6	9.6	10.3	35	476
CUSTOMER OWNED................	75	.25	3.6	4.8	5.9	12.7	43	612
UNKNOWN.......................	100	.34	6.0	6.0	14.3	7.0	24	423
ALL-ELECTRIC HOME								
YES...........................	212	.72	10.0	4.7	12.3	17.3	59	814
BURNS 1/3 CORD OF WOOD OR MORE.........................	49	.17	2.2	4.5	2.2	22.3	76	1008
BURNS LITTLE OR NO WOOD.....	163	.56	7.8	4.7	10.1	16.2	55	771
NO............................	509	1.74	30.2	5.9	69.4	7.3	25	435

See footnotes at end of table.

Table 9. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY							
	TOTAL AMOUNT CONSUMED (BILLION KWH)	TOTAL AMOUNT CONSUMED (QUADRIL-LION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
FUEL COMBINATIONS								
USE NATURAL GAS FOR MAIN HEATING	309	1.05	18.0	5.8	44.6	6.9	24	404
WATER HEAT AND COOK WITH NATURAL GAS	145	.50	9.1	6.3	25.1	5.8	20	364
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY	126	.43	7.1	5.6	15.7	8.0	27	451
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS	8	.03	.4	5.4	.9	9.2	31	498
WATER HEAT AND COOK WITH ELECTRICITY	28	.10	1.3	4.6	2.6	10.7	37	496
OTHER	1	-	.1	7.0	.3	3.3	11	235
USE ELECTRICITY FOR MAIN HEATING	232	.79	11.0	4.7	14.3	16.2	55	771
WATER HEAT AND COOK WITH ELECTRICITY	212	.72	10.0	4.7	12.3	17.3	59	814
OTHER	20	.07	1.0	5.3	2.0	9.7	33	513
USE FUEL OIL FOR MAIN HEATING	88	.30	6.0	6.9	12.6	7.0	24	478
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY	20	.07	1.5	7.6	2.9	6.9	23	523
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS	10	.03	1.1	11.5	3.3	3.0	10	384
WATER HEAT AND COOK WITH ELECTRICITY	41	.14	2.2	5.3	3.7	11.2	38	508
WATER HEAT AND COOK WITH NATURAL GAS	6	.02	.4	7.5	1.1	5.0	17	374
OTHER	12	.04	.8	6.9	1.6	7.1	24	495
USE WOOD FOR MAIN HEATING	48	.17	2.5	5.1	4.7	10.3	35	525
USE LPG FOR MAIN HEATING	30	.10	1.7	5.6	3.7	8.1	28	450
USE COAL FOR MAIN HEATING	2	.01	.1	5.6	.3	7.8	27	440
OTHER	8	.03	.5	6.1	.9	9.2	31	565
NO HEATING	3	.01	.3	11.3	.5	5.1	17	574

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table 10. U.S. Residential Electricity Consumption and Expenditures for Households Using Electricity as Main Heating Fuel—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	14.3	16.2	55	771	10.7	16.3	56	810	3.6	16.1	55	654
CENSUS REGION AND DIVISION												
NORTHEAST	1.6	16.0	55	975	1.0	15.2	52	982	.6	17.5	60	963
NEW ENGLAND	.3	13.4	46	925	.2	12.3	42	831	.1	15.3	52	1088
MIDDLE ATLANTIC	1.3	16.7	57	988	.8	15.9	54	1022	.5	18.0	61	930
NORTH CENTRAL	2.1	18.2	62	829	1.6	17.6	60	776	.5	20.2	69	988
SOUTH	7.7	16.7	57	834	6.9	17.0	58	845	.9	14.4	49	745
SOUTH ATLANTIC	4.3	15.8	54	877	3.8	15.9	54	884	.6	14.7	50	833
EAST SOUTH CENTRAL	1.8	19.7	67	807	1.6	20.2	69	825	.2	16.7	57	683
WEST SOUTH CENTRAL	1.6	15.7	54	744	1.5	16.3	56	768	.1	6.1	21	322
WEST	2.9	13.6	46	445	1.2	11.5	39	526	1.6	15.2	52	382
MOUNTAIN	.7	13.7	47	690	.5	12.9	44	702	.1	16.6	56	643
PACIFIC	2.2	13.6	46	370	.7	10.5	36	393	1.5	15.1	51	358
AREA TYPE												
URBAN	8.0	13.9	47	661	6.2	14.1	48	718	1.9	13.3	45	475
RURAL	6.3	19.3	66	911	4.5	19.3	66	937	1.7	19.1	65	844
SMSA												
SMSA	9.6	14.9	51	736	7.6	15.0	51	785	2.0	14.3	49	550
NON-SMSA	4.7	19.1	65	842	3.1	19.4	66	873	1.6	18.4	63	784
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE												
<2,000 CDD AND >7,000 HDD	.6	17.8	61	894	.2	19.7	67	972	.4	16.6	57	844
<2,000 CDD AND 5,500 TO 7,000 HDD	2.5	16.5	56	784	1.7	15.5	53	721	.7	18.8	64	931
<2,000 CDD AND 4,000 TO 5,499 HDD	3.6	17.9	61	739	1.8	18.2	62	902	1.7	17.6	60	566
<2,000 CDD AND <4,000 HDD	3.1	15.2	52	688	2.7	16.1	55	726	.5	10.5	36	474
>2,000 CDD AND <4,000 HDD	4.5	15.3	52	831	4.2	15.7	54	851	.3	8.6	29	515
ELECTRICITY PAID BY HOUSEHOLD												
YES	12.9	17.1	58	809	9.6	17.2	59	850	3.3	16.9	58	690
NO	1.4	7.9	27	405	1.1	8.2	28	449	.3	6.8	23	249

See footnotes at end of table.

Residential Electricity Consumption and Expenditures

Table 10. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)	NUMBER OF HOUSE-HOLDS (MIL-LION)	AVG AMOUNT CON-SUMED (THOU-SAND KWH)	AVG AMOUNT CON-SUMED (MIL-LION BTU)	AVG EXPEND-ITURES PER HOUSE-HOLD (DOL-LARS)
TYPE OF HOUSING STRUCTURE												
SINGLE-FAMILY DETACHED........	7.7	20.9	71	982	5.6	21.1	72	1028	2.0	20.2	69	853
OWN..........................	6.9	21.2	72	1005	5.2	21.5	73	1048	1.7	20.4	70	875
RENT.........................	.8	17.9	61	785	.5	17.2	59	815	.3	18.9	64	742
SINGLE-FAMILY ATTACHED........	.5	14.2	49	792	.4	14.5	50	835	.1	13.4	46	667
BUILDING WITH 2 TO 4 UNITS....	1.3	11.2	38	510	.9	11.5	39	594	.5	10.8	37	356
BUILDING WITH 5 OR MORE UNITS........................	3.7	9.2	31	462	3.1	9.5	32	500	.6	7.7	26	258
MOBILE HOME...................	1.1	14.8	51	648	.7	14.7	50	694	.4	14.9	51	575
NUMBER OF ROOMS												
1 OR 2 ROOMS..................	.8	5.5	19	304	.5	5.4	18	324	.2	5.8	20	260
3.............................	2.3	8.5	29	412	1.7	8.5	29	451	.6	8.6	29	301
4.............................	3.2	12.8	44	596	2.4	12.5	43	626	.8	13.8	47	503
5.............................	3.0	17.4	59	824	2.1	17.4	59	861	.9	17.3	59	736
6.............................	2.8	20.8	71	987	1.9	20.6	70	994	.5	21.7	74	962
7.............................	1.3	23.4	80	1084	1.1	23.3	79	1108	.2	24.2	83	974
8 OR MORE.....................	1.4	25.6	87	1240	1.0	26.0	89	1322	.3	24.3	83	991
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED												
ALL...........................	9.0	16.9	58	842	9.0	16.9	58	842	-	-	-	-
SOME..........................	1.7	13.0	44	649	1.7	13.0	44	649	-	-	-	-
NONE..........................	3.6	16.1	55	654	-	-	-	-	3.6	16.1	55	654
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)												
LESS THAN 600.................	1.2	7.4	25	347	.7	7.2	24	398	.5	7.7	26	276
600 TO 999....................	4.6	11.3	38	533	3.4	10.5	36	545	1.1	13.6	46	496
1,000 TO 1,599................	4.2	16.9	58	800	3.2	16.6	57	828	1.0	17.9	61	715
1,600 TO 1,999................	1.6	20.4	70	1002	1.2	20.4	70	997	.3	20.3	69	1020
2,000 TO 2,399................	1.3	24.7	84	1181	1.0	24.9	85	1217	.3	24.2	83	1064
2,400 TO 2,999................	.7	21.3	73	1050	.5	22.9	78	1167	.2	16.6	56	704
3,000 OR MORE.................	.7	28.9	99	1294	.6	30.0	102	1364	.1	24.4	83	1001

See footnotes at end of table.

Residential Electricity Consumption and Expenditures

Table 10. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
YEAR HOUSE BUILT												
1939 OR EARLIER	0.8	15.9	54	714	0.4	16.8	57	813	0.3	14.8	50	579
1940 TO 1949	.5	15.9	54	682	.2	18.0	61	870	.2	14.0	48	510
1950 TO 1959	1.1	15.7	54	713	.7	16.6	57	789	.4	14.1	48	576
1960 TO 1964	.8	18.5	63	800	.5	18.4	63	855	.3	18.8	64	722
1965 TO 1969	1.7	16.2	55	719	1.2	16.2	55	765	.5	16.3	56	615
1970 TO 1974	3.7	16.4	56	802	2.8	15.7	54	791	.9	18.5	63	838
1975 OR LATER	5.7	16.0	55	788	4.8	16.3	56	829	.9	14.4	49	561
OWN/RENT												
OWN	8.5	20.0	68	948	6.4	20.0	68	986	2.1	19.7	67	827
RENT	5.8	10.8	37	512	4.2	10.6	36	544	1.6	11.3	39	425
1979 FAMILY INCOME												
LESS THAN $5,000	1.8	11.2	38	512	1.2	10.5	36	521	.6	12.5	43	493
$5,000 TO $9,999	2.1	13.2	45	615	1.4	12.6	43	628	.7	14.4	49	589
$10,000 TO $14,999	2.5	14.3	49	687	1.9	14.5	49	714	.6	13.7	47	600
$15,000 TO $19,999	2.0	15.5	53	722	1.5	15.2	52	750	.6	16.3	56	648
$20,000 TO $24,999	1.7	19.7	67	905	1.4	19.3	66	939	.4	21.2	72	773
$25,000 TO $34,999	2.4	18.0	62	843	1.8	17.7	60	850	.5	19.3	66	788
$35,000 OR MORE	1.8	22.6	77	1163	1.5	22.9	78	1204	.3	20.8	71	921
TOTAL POOR (100 PERCENT LEVEL)	1.9	13.1	45	620	1.1	12.6	43	637	.7	14.1	48	593
TOTAL POOR (125 PERCENT LEVEL)	2.3	13.1	45	611	1.4	12.4	42	621	.8	14.3	49	595
ORIGIN												
WHITE	13.0	16.4	56	777	9.9	16.4	56	813	3.2	16.5	56	664
BLACK	.9	13.2	45	707	.6	13.7	47	748	.4	12.3	42	682
OTHER	.3	17.0	58	716	.2	17.1	58	860	.1	16.6	57	347
AGE OF HOUSEHOLD HEAD												
UNDER 25 YEARS	1.9	10.6	36	504	1.4	10.5	36	538	.5	11.1	38	403
25 TO 34 YEARS	4.3	15.3	52	738	3.1	15.7	53	786	1.2	14.5	49	612
35 TO 44 YEARS	2.3	21.2	72	1005	1.8	21.6	74	1078	.5	19.8	67	744
45 TO 59 YEARS	2.5	19.2	65	917	1.8	19.3	66	939	.7	18.9	65	862
60 YEARS AND OVER	3.3	15.0	51	697	2.6	14.5	49	716	.7	16.8	57	629

See footnotes at end of table.

Table 10.
(Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLICN)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
HOUSEHOLD MEMBERS												
1..............................	3.6	10.6	36	515	2.8	10.9	37	564	0.9	9.8	34	363
2..............................	4.8	14.4	49	680	3.7	14.0	48	698	1.2	15.4	53	623
3..............................	2.3	19.3	66	893	1.8	20.0	68	972	.6	17.3	59	656
4..............................	1.8	21.1	72	1023	1.3	21.6	74	1102	.5	19.8	68	811
5..............................	1.1	22.9	78	1103	.8	24.0	82	1163	.3	20.0	68	938
6 OR MORE......................	.6	26.8	91	1223	.4	25.5	87	1194	.2	29.1	99	1274
TYPE OF ELECTRIC UTILITY												
PRIVATELY OWNED................	7.9	16.2	55	832	5.9	16.2	55	853	1.9	16.2	55	770
PUBLICLY OWNED.................	2.2	17.6	60	694	1.7	17.1	59	778	.5	18.9	65	425
CUSTOMER OWNED.................	1.7	20.3	69	881	1.2	20.8	71	936	.5	19.1	65	729
UNKNOWN........................	2.5	12.2	42	572	1.8	12.6	43	618	.7	11.4	39	447
ALL-ELECTRIC HOME												
YES............................	12.3	17.3	59	814	9.1	17.3	59	856	3.2	17.3	59	691
BURNS 1/3 CORD OF WOOD OR MORE.........................	2.2	22.3	76	1008	1.5	22.8	78	1110	.7	21.2	72	782
BURNS LITTLE OR NO WOOD.....	10.1	16.2	55	771	7.6	16.2	55	805	.5	16.3	55	666
NO.............................	2.0	9.7	33	513	1.6	10.3	35	589	.4	7.5	25	389
MAIN HEATING EQUIPMENT USING ELECTRICITY												
CENTRAL WARM AIR FURNACE......	5.6	16.4	56	776	4.9	16.0	55	794	.7	18.7	64	646
BUILT-IN ELECTRIC UNITS.......	5.3	15.5	53	714	2.9	14.8	50	735	2.4	16.5	56	689
HEAT PUMP......................	2.1	20.4	70	1028	2.1	20.4	70	1028	-	-	-	-
OTHER..........................	1.3	11.9	40	568	.8	12.4	42	613	.5	11.0	37	501

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Residential Electricity Consumption and Expenditures

Table 11. U.S. Residential Electricity Consumption and Expenditures for Households Using Electricity But Not as Main Heating Fuel—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	67.3	7.3	25	433	34.3	8.5	29	501	33.0	6.0	20	362
CENSUS REGION AND DIVISION												
NORTHEAST	16.1	5.6	19	439	7.6	6.0	20	501	8.5	5.2	18	384
NEW ENGLAND	3.9	6.0	20	451	1.5	6.7	23	500	2.4	5.5	19	420
MIDDLE ATLANTIC	12.1	5.4	19	436	6.0	5.8	20	502	6.1	5.0	17	370
NORTH CENTRAL	18.9	7.2	25	416	10.2	8.0	27	453	8.8	6.3	22	374
EAST NORTH CENTRAL	13.1	6.8	23	400	6.1	7.4	25	437	7.0	6.2	21	368
WEST NORTH CENTRAL	5.9	8.2	28	453	4.1	8.9	30	476	1.8	6.8	23	400
SOUTH	19.2	9.4	32	496	12.6	10.9	37	565	6.6	6.6	22	364
SOUTH ATLANTIC	9.7	8.6	29	482	5.6	10.0	34	554	4.1	6.8	23	382
EAST SOUTH CENTRAL	3.3	10.4	36	473	2.4	12.0	41	535	.9	6.0	23	316
WEST SOUTH CENTRAL	6.2	10.1	34	529	4.6	11.5	39	593	1.6	6.0	21	345
WEST	13.1	6.3	21	355	3.9	7.0	24	421	9.2	5.9	20	327
MOUNTAIN	3.4	6.7	23	362	1.2	7.8	27	431	2.2	6.1	21	324
PACIFIC	9.7	6.1	21	353	2.7	6.7	23	417	6.9	5.9	20	328
AREA TYPE												
URBAN	48.0	6.6	23	407	26.1	7.9	27	480	21.9	5.1	17	321
RURAL	19.3	8.8	30	495	8.2	10.3	35	567	11.1	7.7	26	442
SMSA												
SMSA	46.0	6.8	23	424	24.8	8.1	28	495	21.2	5.3	18	341
NON-SMSA	21.3	8.2	28	452	9.5	9.5	33	518	11.8	7.1	24	399
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE												
<2,000 CDD AND >7,000 HDD	7.9	7.6	26	418	2.4	7.8	27	417	5.5	7.5	25	413
<2,000 CDD AND 5,500 TO 7,000 HDD	18.5	6.4	22	401	8.9	7.2	25	449	9.6	5.6	19	356
<2,000 CDD AND 4,000 TO 5,499 HDD	17.6	6.8	23	443	10.1	7.4	25	505	7.5	6.0	21	359
<2,000 CDD AND <4,000 HDD	15.9	7.3	25	407	7.4	9.4	32	497	8.5	5.5	19	328
>2,000 CDD AND <4,000 HDD	7.6	10.1	35	559	5.6	11.7	40	617	2.0	5.7	20	399

See footnotes at end of table.

Table 11. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
ELECTRICITY PAID BY HOUSEHOLD												
YES	62.9	7.5	26	443	32.3	8.7	30	511	30.6	6.2	21	371
NO	4.4	3.9	13	284	2.0	4.6	16	331	2.5	3.3	11	246
TYPE OF HOUSING STRUCTURE												
SINGLE-FAMILY DETACHED	45.3	8.5	29	487	23.6	9.8	33	556	21.7	7.1	24	411
OWN	38.6	8.8	30	499	21.1	9.9	34	561	17.5	7.4	25	423
RENT	6.7	7.1	24	415	2.5	9.1	31	510	4.2	6.0	21	361
SINGLE-FAMILY ATTACHED	2.8	5.8	20	395	1.6	6.4	22	451	1.2	4.9	17	319
OWN	2.0	5.9	20	409	1.3	6.4	22	451	.7	5.0	17	316
RENT	.8	5.4	18	356	.3	6.3	21	407	.5	4.8	16	323
BUILDING WITH 2 TO 4 UNITS	8.6	4.2	14	304	3.4	5.2	18	377	5.2	3.5	12	256
OWN	1.8	5.4	19	435	1.1	6.0	20	496	.7	4.6	16	342
RENT	6.8	3.8	13	271	2.4	4.8	17	324	4.5	3.3	11	242
BUILDING WITH 5 CR MORE UNITS	7.1	3.4	12	261	3.9	4.0	14	298	3.2	2.7	9	217
OWN	.7	5.1	17	389	.6	5.0	17	402	Q	5.2	18	331
RENT	6.4	3.2	11	247	3.3	3.8	13	280	3.0	2.6	9	212
MOBILE HOME	3.6	7.7	26	426	1.8	9.3	32	499	1.8	6.0	20	351
OWN	2.7	7.8	27	428	1.4	9.5	32	506	1.3	6.0	20	344
RENT	.8	7.2	25	418	.4	8.7	30	475	.5	5.9	20	369
NUMBER OF ROOMS												
1	.6	2.5	8	234	.4	2.5	8	251	.3	2.5	8	209
2	1.3	3.0	10	210	.6	3.2	11	247	.8	2.8	9	183
3	5.6	3.7	13	246	2.5	4.6	16	296	3.1	2.9	10	205
4	13.1	5.4	18	327	6.3	6.4	22	379	6.8	4.5	15	278
5	15.9	7.2	24	417	7.7	8.4	29	477	8.1	6.0	21	359
6	15.2	8.1	28	479	8.3	9.2	31	536	6.9	6.9	23	410
7	8.1	9.0	31	538	4.5	10.2	35	606	3.6	7.6	26	455
8 OR MORE	7.5	10.9	37	638	4.1	12.5	43	729	3.4	9.1	31	528

See footnoter at end of table.

Residential Electricity Consumption and Expenditures

Table 11. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED												
ALL	20.8	9.6	33	533	19.2	9.7	33	538	1.6	8.1	28	480
SOME	15.2	6.9	24	454	15.1	6.9	24	454	Q	8.5	29	473
NONE	31.3	5.9	20	355	-	-	-	-	31.3	5.9	20	355
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)												
LESS THAN 600	6.2	3.7	13	280	2.4	4.4	15	312	3.8	3.3	11	260
600 TO 999	16.5	5.4	19	332	8.0	6.5	22	382	8.5	4.5	15	285
1,000 TO 1,599	19.7	7.3	25	425	10.0	8.5	29	491	9.8	6.2	21	358
1,600 TO 1,999	8.4	8.7	30	502	4.6	9.7	33	562	3.8	7.4	25	429
2,000 TO 2,399	6.4	9.0	31	529	3.8	9.7	33	570	2.6	7.9	27	469
2,400 TO 2,999	5.5	9.4	32	548	3.1	10.7	37	625	2.4	7.6	26	446
3,000 OR MORE	4.5	10.9	37	639	2.4	12.5	43	738	2.1	9.0	31	524
YEAR HOUSE BUILT												
1939 OR EARLIER	22.5	6.0	20	377	9.4	7.0	24	441	13.2	5.3	18	332
1940 TO 1949	7.0	6.9	24	398	3.3	8.3	28	482	3.7	5.7	19	323
1950 TO 1959	12.6	7.6	26	452	7.2	8.7	30	518	5.3	6.1	21	361
1960 TO 1964	6.4	7.8	27	457	3.5	8.7	30	497	2.8	6.6	23	408
1965 TO 1969	6.4	8.0	27	456	3.6	9.2	31	525	2.8	6.3	22	364
1970 TO 1974	6.8	8.7	30	503	4.1	9.7	33	555	2.7	7.2	25	425
1975 OR LATER	5.6	9.0	31	514	3.1	10.2	35	567	2.5	7.5	26	449
OWN/RENT												
OWN	45.8	8.4	29	487	25.5	9.4	32	547	20.4	7.1	24	411
RENT	21.5	4.9	17	318	8.8	5.8	20	369	12.7	4.2	14	282
TYPE OF ELECTRIC UTILITY												
PRIVATELY OWNED	44.1	7.3	25	441	22.7	8.3	28	506	21.4	6.1	21	372
PUBLICLY OWNED	7.3	8.1	28	410	4.4	9.8	34	503	3.0	5.6	19	272
CUSTOMER OWNED	4.2	9.6	33	502	1.7	11.5	39	566	2.5	8.4	29	459
UNKNOWN	11.8	5.9	20	391	5.6	7.3	25	458	6.2	4.7	16	331

See footnotes at end of table.

Table 11.
(Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
1979 FAMILY INCOME												
LESS THAN $5,000	8.6	4.9	17	301	3.3	5.9	20	351	5.3	4.2	14	270
$5,000 TO $9,999	11.7	5.7	20	342	5.1	6.7	23	391	6.6	5.0	17	302
$10,000 TO $14,999	11.4	6.2	21	376	5.6	7.0	24	425	5.8	5.5	19	329
$15,000 TO $19,999	9.8	7.8	26	455	5.3	8.8	30	514	4.5	6.5	22	387
$20,000 TO $24,999	8.2	8.2	28	479	4.9	9.1	31	527	3.3	7.0	24	405
$25,000 TO $34,999	10.0	8.7	30	508	5.3	9.9	34	572	4.7	7.4	25	437
$35,000 OR MORE	7.7	10.3	35	626	4.8	11.5	39	691	2.9	8.3	28	516
TOTAL POOR (100 PERCENT LEVEL)	9.1	5.5	19	335	3.2	6.8	23	397	5.9	4.8	16	301
TOTAL POOR (125 PERCENT LEVEL)	12.5	5.5	19	335	4.6	6.7	23	391	7.8	4.8	16	301
ORIGIN												
WHITE	57.9	7.5	25	441	30.5	8.5	29	503	27.4	6.3	21	371
BLACK	8.3	6.1	21	381	3.5	8.2	28	402	4.8	4.5	15	308
OTHER	1.1	5.6	19	389	.3	7.8	27	477	.8	4.9	17	358
AGE OF HOUSEHOLD HEAD												
UNDER 25 YEARS	4.8	5.3	18	315	2.0	6.7	23	369	2.8	4.3	15	276
25 TO 34 YEARS	15.9	6.8	23	409	7.6	8.2	28	481	8.3	5.6	19	344
35 TO 44 YEARS	11.8	8.9	30	527	6.0	10.1	34	599	5.8	7.7	26	451
45 TO 59 YEARS	16.5	8.4	29	500	9.2	9.8	33	575	7.3	6.8	23	407
60 YEARS AND OVER	18.5	6.0	21	363	9.6	6.9	24	412	8.9	5.1	17	310
HOUSEHOLD MEMBERS												
1	12.1	4.1	14	262	5.8	4.8	16	302	6.3	3.4	12	225
2	21.9	6.6	23	391	12.2	7.7	26	457	9.7	5.2	18	310
3	12.5	8.0	27	471	6.6	9.4	32	542	6.0	6.5	22	394
4	11.6	9.1	31	530	5.7	10.7	37	622	5.9	7.5	26	443
5	5.7	9.9	34	584	2.7	11.5	39	662	3.0	8.5	29	514
6 OR MORE	3.5	9.5	33	573	1.4	12.0	41	724	2.1	7.9	27	473

See footnotes at end of table.

Table 11. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
FUEL COMBINATIONS												
USE NATURAL GAS FOR MAIN HEATING........................	44.6	6.9	24	404	24.4	8.3	28	474	20.2	5.3	18	320
WATER HEAT AND COOK WITH NATURAL GAS..................	25.1	5.8	20	364	12.8	7.0	24	429	12.3	4.6	16	296
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY...	15.7	8.0	27	451	9.3	9.3	32	516	6.5	6.2	21	358
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS...	.9	9.2	31	498	.6	10.6	36	577	.3	6.6	22	346
WATER HEAT AND COOK WITH ELECTRICITY..................	2.6	10.7	37	496	1.7	11.7	40	565	1.0	9.1	31	379
OTHER........................	.3	3.3	11	235	Q	Q	Q	341	.2	2.6	9	191
USE FUEL OIL FOR MAIN HEATING........................	12.6	7.0	24	478	6.1	7.8	27	553	6.4	6.2	21	407
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY.......	2.9	6.9	23	523	1.6	7.7	26	591	1.2	5.8	20	434
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS.......	3.3	3.0	10	344	1.6	3.5	12	400	1.6	2.4	8	288
WATER HEAT AND COOK WITH ELECTRICITY..................	3.7	11.2	38	588	1.8	12.6	43	693	1.9	9.8	33	487
WATER HEAT AND COOK WITH NATURAL GAS..................	1.1	5.0	17	374	.6	6.1	21	462	.6	3.9	13	288
OTHER........................	1.6	7.1	24	495	.5	7.0	24	522	1.1	7.2	25	482
USE WOOD FOR MAIN HEATING.....	4.7	10.3	35	525	1.4	13.0	44	646	3.3	9.2	31	475
USE LPG FOR MAIN HEATING......	3.7	8.1	28	450	1.8	9.9	34	531	1.9	6.3	22	371
USE COAL FOR MAIN HEATING.....	.3	7.8	27	440	.1	7.4	25	403	.3	7.9	27	448
OTHER........................	.9	9.2	31	565	.5	11.4	39	661	.4	6.8	23	458
NO HEATING....................	.5	5.1	17	574	.1	8.5	29	716	.4	4.6	16	556

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Residential Fuel Oil or Kerosene Consumption and Expenditures

Table 12. U.S. Residential Fuel Oil or Kerosene Consumption and Expenditures—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED:								
						AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS................	15.4	11.22	1.55	12.5	1.11	13.4	812	112	905
CENSUS REGION AND DIVISION									
NORTHEAST......................	9.2	7.87	1.09	8.8	1.11	8.2	937	130	1045
NEW ENGLAND..................	2.7	2.30	.32	2.6	1.12	2.3	957	133	1071
MIDDLE ATLANTIC..............	6.5	5.57	.77	6.2	1.11	5.9	929	129	1035
NORTH CENTRAL..................	2.0	1.13	.16	1.2	1.09	1.5	666	92	732
EAST NORTH CENTRAL...........	1.5	.85	.12	.9	1.10	1.2	673	93	746
WEST NORTH CENTRAL...........	.5	.28	.04	.3	1.07	.4	646	89	691
SOUTH..........................	3.6	1.96	.27	2.2	1.12	3.1	606	83	678
SOUTH ATLANTIC...............	3.5	1.91	.26	2.1	1.12	3.0	609	84	682
EAST/WEST SOUTH CENTRAL.....	.2	.05	.01	.1	1.10	.1	507	70	561
WEST...........................	.6	.26	.04	.3	1.09	.5	501	69	545
AREA TYPE									
URBAN..........................	9.5	7.65	1.06	8.5	1.12	8.6	873	121	974
RURAL..........................	5.9	3.56	.49	3.9	1.11	4.8	705	97	781
SMSA									
SMSA...........................	10.2	8.10	1.12	9.0	1.12	9.3	851	118	950
NON-SMSA.......................	5.2	3.12	.43	3.5	1.11	4.1	723	100	800
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)--LONG-TERM AVERAGE									
<2,000 CDD AND >7,000 HDD.....	2.5	1.56	.22	1.7	1.10	1.8	793	110	877
<2,000 CDD AND 5,500 TO 7,000 HDD............	4.0	3.28	.45	3.6	1.11	3.6	889	123	988
<2,000 CDD AND 4,000 TO 5,499 HDD............	7.1	5.51	.76	6.1	1.11	6.4	843	117	940
<2,000 CDD AND <4,000 HDD.....	1.3	.74	.10	.8	1.12	1.2	593	81	666
>2,000 CDD AND <4,000 HDD.....	.4	.14	.02	.2	1.16	.4	361	50	417

See footnotes at end of table.

Residential Fuel Oil or Kerosene Consumption and Expenditures

Table 12.
(Continued)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED:								
						AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
FUEL OIL PAID BY HOUSEHOLD									
YES..............................	11.8	8.40	1.16	9.4	1.11	10.2	793	110	884
NO................................	3.6	2.82	.39	3.1	1.11	3.1	874	121	973
TYPE OF HOUSING STRUCTURE									
SINGLE-FAMILY DETACHED.........	9.2	6.50	.90	7.2	1.11	7.9	793	110	882
OWN............................	8.0	5.72	.79	6.4	1.11	6.8	809	112	900
RENT...........................	1.2	.70	.11	.9	1.11	1.1	691	96	769
SINGLE-FAMILY ATTACHED.........	.8	.65	.09	.7	1.11	.7	882	122	978
OWN............................	.7	.60	.08	.7	1.11	.7	913	127	1012
RENT...........................	.1	.05	.01	.1	1.11	.1	635	88	706
BUILDING WITH 2 TO 4 UNITS.....	1.7	1.52	.21	1.7	1.12	1.6	916	127	1025
OWN............................	.6	.55	.08	.6	1.13	.5	1017	141	1147
RENT...........................	1.2	.97	.13	1.1	1.11	1.1	867	120	967
BUILDING WITH 5 OR MORE UNITS...........................	2.8	2.19	.30	2.4	1.11	2.4	897	124	999
MOBILE HOME....................	.9	.35	.05	.4	1.12	.7	438	60	493
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED									
ALL............................	2.7	1.71	.24	1.9	1.11	2.2	734	102	815
SOME...........................	4.8	3.85	.53	4.3	1.12	4.3	866	120	966
NONE...........................	7.9	5.65	.78	6.3	1.11	6.8	803	111	894
MEASURED HEATED SPACE OF RESI-DENCE (IN SQUARE FEET)									
LESS THAN 600..................	1.8	1.22	.17	1.4	1.11	1.6	762	105	848
600 TO 999.....................	3.5	2.32	.32	2.6	1.12	3.1	723	100	807
1,000 TO 1,599.................	4.1	2.82	.39	3.1	1.12	3.5	764	106	854
1,600 TO 1,999.................	1.8	1.22	.17	1.4	1.11	1.4	782	108	872
2,000 TO 2,399.................	1.4	1.18	.16	1.3	1.11	1.2	920	127	1023
2,400 TO 2,999.................	1.5	1.19	.16	1.3	1.10	1.3	869	120	958
3,000 OR MORE..................	1.3	1.32	.18	1.5	1.11	1.1	1134	157	1264

See footnotes at end of table.

Table 12.
(Continued)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOID (DOLLARS)
YEAR HOUSE BUILT									
1939 OR EARLIER	6.0	5.37	0.74	6.0	1.11	6.1	870	121	970
1940 TO 1949	1.8	1.32	.18	1.5	1.12	1.6	791	109	883
1950 TO 1959	2.7	1.92	.27	2.1	1.11	2.5	761	105	848
1960 TO 1964	1.4	.94	.13	1.0	1.11	1.1	815	113	909
1965 TO 1969	.9	.58	.08	.6	1.11	.7	755	104	837
1970 TO 1974	1.0	.64	.09	.7	1.11	.8	749	103	832
1975 OR LATER	.9	.44	.06	.5	1.11	.6	644	89	717
OWN/RENT									
OWN	10.2	7.43	1.03	8.3	1.11	8.7	822	114	916
RENT	5.2	3.79	.52	4.2	1.11	4.7	794	110	884
1979 FAMILY INCOME									
LESS THAN $5,000	2.2	1.60	.22	1.8	1.12	2.0	799	110	892
$5,000 TO $9,999	2.8	2.10	.29	2.3	1.11	2.5	836	116	928
$10,000 TO $14,999	2.9	1.89	.26	2.1	1.11	2.4	752	104	835
$15,000 TO $19,999	2.2	1.48	.20	1.6	1.11	1.8	789	109	877
$20,000 TO $24,999	1.5	1.14	.16	1.3	1.12	1.4	799	111	895
$25,000 TO $34,999	2.3	1.66	.23	1.9	1.11	2.0	806	112	899
$35,000 OR MORE	1.5	1.35	.19	1.5	1.11	1.4	947	131	1055
TOTAL POOR (100 PERCENT LEVEL)	1.9	1.39	.19	1.5	1.11	1.7	800	111	888
TOTAL POOR (125 PERCENT LEVEL)	2.9	2.15	.30	2.4	1.11	2.6	803	111	895
ORIGIN									
WHITE	13.3	9.44	1.31	10.5	1.11	11.4	799	111	889
BLACK	2.0	1.74	.24	1.9	1.12	1.9	895	124	999
OTHER	.1	.04	.01	-	1.12	.1	671	93	750
AGE OF HOUSEHOLD HEAD									
UNDER 25 YEARS	.8	.53	.07	.6	1.11	.6	790	109	875
25 TO 34 YEARS	3.0	1.98	.27	2.2	1.11	2.6	749	104	832
35 TO 44 YEARS	2.7	1.79	.25	2.0	1.11	2.2	765	106	853
45 TO 59 YEARS	3.9	2.97	.41	3.3	1.11	3.5	824	114	919
60 YEARS AND OVER	5.0	3.94	.55	4.4	1.11	4.5	866	120	965

See footnotes at end of table.

Table 12. (Continued)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOID (DOLLARS)
HOUSEHOLD MEMBERS									
1	3.0	2.28	0.32	2.5	1.12	2.7	821	114	918
2	5.4	3.90	.54	4.3	1.11	4.8	796	110	884
3	2.6	1.92	.27	2.1	1.11	2.3	808	112	897
4	2.4	1.56	.21	1.7	1.11	2.0	750	104	838
5	1.2	.84	.12	.9	1.11	1.0	839	116	935
6 OR MORE	.8	.72	.10	.8	1.12	.7	1048	145	1171
FUEL COMBINATIONS									
USE FUEL OIL FOR MAIN HEATING	12.6	10.46	1.45	11.6	1.11	12.6	833	115	927
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY	2.9	2.94	.41	3.3	1.11	2.9	1025	142	1137
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS	3.3	3.17	.44	3.5	1.12	3.3	974	135	1089
WATER HEAT AND COOK WITH ELECTRICITY	3.7	2.31	.32	2.6	1.11	3.7	630	87	698
WATER HEAT AND COOK WITH NATURAL GAS	1.1	.87	.12	1.0	1.12	1.1	771	107	862
OTHER	1.6	1.17	.16	1.3	1.12	1.6	714	99	797
OTHER	2.8	.75	.10	.8	1.11	.8	485	65	550
CAPACITY OF FUEL OIL/KEROSENE TANK(5)									
249 GALLONS OR LESS	1.1	.57	.08	.6	1.13	.9	589	81	664
250 TO 300 GALLONS	7.0	4.99	.69	5.6	1.12	6.2	778	108	870
301 TO 799 GALLONS	2.1	1.60	.22	1.8	1.10	1.8	854	118	943
800 OR MORE GALLONS	.7	.71	.10	.8	1.11	.7	1007	139	1115
NOT REPORTED	.9	.53	.07	.6	1.11	.6	831	115	924
TANK SIZE NOT ASKED FOR HOUSEHOLD NOT PAYING FOR FUEL OIL/KEROSENE	3.6	2.81	.39	3.1	1.11	3.1	875	121	974

See footnotes at end of table.

Table 12. (Continued)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
NUMBER OF ROOMS									
1	0.3	0.20	0.03	0.2	1.11	0.3	730	101	812
2	.3	.19	.03	.2	1.11	.3	679	94	755
3	1.5	1.02	.14	1.1	1.11	1.3	774	107	862
4	2.8	1.88	.26	2.1	1.11	2.5	735	102	819
5	3.0	1.99	.28	2.2	1.11	2.6	742	103	825
6	3.1	2.43	.34	2.7	1.12	2.8	841	116	942
7	2.2	1.62	.22	1.8	1.11	1.8	856	119	951
8 OR MORE	2.2	1.89	.26	2.1	1.11	1.9	984	136	1091
MAIN HEATING EQUIPMENT USING FUEL OIL									
STEAM OR HOT WATER SYSTEM	7.1	7.05	.98	7.9	1.11	7.1	989	137	1102
CENTRAL WARM AIR FURNACE	4.7	2.93	.41	3.2	1.11	4.7	629	87	697
OTHER/NONE	3.6	1.23	.17	1.4	1.12	1.6	552	75	625

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Residential Liquid Petroleum Gas Consumption and Expenditures

Table 13. U.S. Residential Liquid Petroleum Gas Consumption and Expenditures—April 1980 Through March 1981

HOUSEHOLD CHARACTERISTICS	LIQUID PETROLEUM GAS (LPG) USED:												
						AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS................	7.7	3.99	0.36	2.9	0.72	3.7	840	77	585	3.8	219	20	178
CENSUS REGION AND DIVISION													
NORTHEAST........................	1.3	.30	.03	.3	.91	Q	898	82	732	1.1	138	13	138
NORTH CENTRAL....................	2.1	1.66	.15	1.1	.67	1.2	1189	109	793	.9	277	25	200
EAST NORTH CENTRAL..........	1.2	.97	.09	.7	.70	.7	1221	112	843	.5	277	25	206
WEST NORTH CENTRAL..........	.9	.69	.06	.4	.64	.5	1147	105	726	.4	277	25	193
SOUTH............................	3.5	1.59	.15	1.2	.74	2.0	635	58	458	1.5	218	20	180
SOUTH ATLANTIC...............	2.4	.95	.09	.7	.77	1.1	603	55	449	1.2	222	20	186
EAST SOUTH CENTRAL..........	.5	.30	.03	.2	.70	.4	690	63	481	.2	229	21	174
WEST SOUTH CENTRAL..........	.6	.34	.03	.2	.69	.5	668	61	460	.1	171	16	135
WEST.............................	.8	.43	.04	.3	.72	.4	785	72	531	.3	352	32	253
MOUNTAIN.....................	.4	.27	.02	.2	.66	.3	803	73	527	Q	461	42	316
PACIFIC......................	.4	.16	.01	.1	.83	Q	697	64	549	.2	321	29	235
AREA TYPE													
URBAN............................	1.3	.44	.04	.3	.78	.5	538	49	410	.8	205	19	164
RURAL............................	6.3	3.55	.32	2.5	.72	3.2	887	81	612	3.0	223	20	182
SMSA													
SMSA.............................	2.6	1.12	.10	.8	.75	1.1	708	65	515	1.4	216	20	176
NON-SMSA.........................	5.1	2.86	.26	2.0	.71	2.5	899	82	616	2.4	222	20	180
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE													
<2,000 CDD AND >7,000 HDD.....	1.3	.75	.07	.5	.71	.5	1166	107	784	.8	212	19	175
<2,000 CDD AND 5,500 TO 7,000 HDD............	1.4	.82	.07	.6	.72	.6	1021	93	705	.8	204	19	172
<2,000 CDD AND 4,000 TO 5,499 HDD............	1.6	.84	.08	.6	.72	.6	1043	95	712	1.0	171	16	146
<2,000 CDD AND <4,000 HDD.....	1.8	.86	.08	.6	.73	.9	688	63	488	.8	264	24	206
>2,000 CDD AND <4,000 HDD.....	1.5	.72	.07	.5	.75	1.0	571	52	416	.4	291	27	219
LPG PAID BY HOUSEHOLD													
YES..............................	7.3	3.84	.35	2.8	.73	3.6	843	77	587	3.6	220	20	179
NO...............................	.3	.14	.01	.1	.72	.1	757	69	523	.2	209	19	165

See footnotes at end of table.

Residential Liquid Petroleum Gas Consumption and Expenditures

Table 13. (Continued)

HOUSEHOLD CHARACTERISTICS	LIQUID PETROLEUM GAS (LPG) USED:												
						AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TYPE OF HOUSING STRUCTURE													
SINGLE-FAMILY	5.2	2.91	0.27	2.1	0.72	2.3	951	87	653	2.8	237	22	192
OWN	4.2	2.37	.22	1.7	.71	1.9	942	86	642	2.3	248	23	200
RENT	.9	.45	.04	.3	.76	.4	920	84	653	.5	189	17	159
BUILDINGS WITH 2 OR MORE UNITS	.4	.17	.02	.1	.81	.2	693	63	544	.2	138	13	129
MOBILE HOME	2.0	.90	.08	.7	.72	1.2	645	59	456	.9	176	16	143
NUMBER OF ROOMS													
1 OR 2 ROOMS	.3	.12	.01	.1	.73	.1	569	52	400	.2	256	23	197
3	.7	.31	.03	.2	.76	.4	619	57	467	.3	187	17	152
4	1.8	.94	.09	.7	.72	1.1	750	69	528	.7	121	11	108
5	2.0	.99	.09	.7	.72	1.0	826	76	573	1.0	175	16	146
6	1.4	.74	.07	.5	.72	.6	925	85	642	.8	268	25	205
7	.8	.46	.04	.3	.74	.3	1077	99	738	.5	280	26	235
8 OR MORE	.6	.43	.04	.3	.69	.2	1409	129	911	.4	332	30	264
YEAR HOUSE BUILT													
1939 OR EARLIER	2.3	1.27	.12	.9	.72	.9	1064	97	723	1.4	208	19	179
1940 TO 1949	.6	.24	.02	.2	.72	.2	753	69	502	.4	177	16	147
1950 TO 1959	1.0	.46	.04	.3	.75	.4	865	79	614	.6	159	15	145
1960 TO 1964	.6	.30	.03	.2	.75	.3	791	72	584	.2	204	19	157
1965 TO 1969	.9	.38	.04	.3	.73	.5	601	55	428	.3	210	19	165
1970 TO 1974	1.2	.79	.07	.6	.71	.8	795	73	560	.3	366	34	270
1975 OR LATER	1.0	.53	.05	.4	.71	.5	792	72	541	.5	275	25	203
OWN/RENT													
OWN	6.0	3.18	.29	2.3	.72	2.9	843	77	583	3.0	232	21	188
RENT	1.7	.81	.07	.6	.75	.8	830	76	593	.8	168	15	142
TOTAL POOR (100 PERCENT LEVEL)	1.3	.56	.05	.4	.73	.6	726	66	512	.6	168	15	142
TOTAL POOR (125 PERCENT LEVEL)	1.7	.76	.07	.6	.74	.8	752	69	533	.9	176	16	149

See footnotes at end of table.

Residential Liquid Petroleum Gas Consumption and Expenditures

Table 13.
(Continued)

HOUSEHOLD CHARACTERISTICS	LIQUID PETROLEUM GAS (LPG) USED:												
						AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
1979 FAMILY INCOME													
LESS THAN $5,000	1.2	0.50	0.05	0.4	0.73	0.5	767	70	535	0.7	166	15	139
$5,000 TO $9,999	1.6	.74	.07	.5	.73	.9	704	64	500	.7	180	16	146
$10,000 TO $14,999	1.6	.87	.08	.6	.74	.9	836	76	594	.7	195	18	169
$15,000 TO $19,999	1.0	.48	.04	.4	.74	.4	830	76	587	.7	252	23	205
$20,000 TO $24,999	.5	.41	.04	.3	.71	.3	982	90	671	.2	438	40	336
$25,000 TO $34,999	1.0	.59	.05	.4	.71	.5	907	83	620	.5	224	20	183
$35,000 OR MORE	.6	.40	.04	.3	.69	.3	1130	103	741	.3	282	26	208
ORIGIN													
WHITE, OTHER	7.1	3.72	.34	2.7	.72	3.4	849	78	590	3.6	223	20	181
BLACK	.5	.26	.02	.2	.74	.3	742	68	530	Q	162	15	145
AGE OF HOUSEHOLD HEAD													
UNDER 25 YEARS	.6	.33	.03	.2	.71	.4	782	72	544	.2	184	17	146
25 TO 34 YEARS	1.7	.87	.08	.6	.72	.9	808	74	568	.7	205	19	165
35 TO 44 YEARS	1.3	.67	.06	.5	.74	.6	787	72	551	.7	276	25	219
45 TO 59 YEARS	1.8	1.00	.09	.7	.72	.8	946	87	649	1.0	273	25	219
60 YEARS AND OVER	2.3	1.12	.10	.8	.73	1.1	838	77	585	1.2	156	14	134
HOUSEHOLD MEMBERS													
1	1.2	.54	.05	.4	.74	.6	727	67	525	.5	142	13	123
2	2.5	1.24	.11	.9	.72	1.2	824	75	569	1.3	173	16	145
3	1.7	.82	.07	.6	.72	.8	762	70	524	.8	212	19	171
4	1.3	.67	.06	.5	.74	.6	852	78	605	.7	274	25	223
5	.5	.37	.03	.3	.71	.2	1195	109	806	.3	349	32	267
6 OR MORE	.5	.36	.03	.3	.73	.2	1162	106	801	.2	329	30	255
MAIN HEATING EQUIPMENT USING LPG													
CENTRAL WARM AIR FURNACE	2.0	1.81	.17	1.3	.69	2.0	884	81	614	-	-	-	-
OTHER/NONE	5.6	2.18	.20	1.6	.75	1.7	785	72	549	3.8	219	20	178

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table 14. U.S. Residential Energy Consumption, Not Including Wood, by Climate Zone and Heated Square Footage—April 1980 Through March 1981 (Million Btu per Household)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
TOTAL HOUSEHOLDS	114	108	139	168	78	111	145	66	93	126
AREA TYPE										
URBAN	120	114	147	186	85	125	165	62	96	132
RURAL	101	89	118	135	66	98	117	76	87	110
SMSA										
SMSA	118	112	143	179	85	120	152	62	93	123
NON-SMSA	107	97	128	139	71	103	137	75	95	137
UTILITIES PAID BY HOUSEHOLD										
ALL PAID BY HOUSEHOLD	117	109	140	168	79	112	145	67	94	127
SOME PAID, SOME INCLUDED IN RENT	101	107	128	165	71	Q	-	70	84	Q
ALL INCLUDED IN RENT	91	104	150	Q	75	129	107	50	67	-
OTHER	95	121	114	186	70	73	-	60	68	Q
TYPE OF HOUSING STRUCTURE										
SINGLE-FAMILY DETACHED	125	127	141	167	87	115	144	78	97	127
OWN	128	129	141	166	90	115	145	83	97	127
RENT	108	122	141	173	80	113	115	72	94	132
SINGLE-FAMILY ATTACHED	118	125	131	167	69	93	161	50	101	124
OWN	128	157	134	165	Q	97	163	65	100	124
RENT	98	112	122	Q	63	78	159	42	106	Q
BUILDING WITH 2 TO 4 UNITS	110	117	148	191	71	107	138	61	71	Q
OWN	148	153	174	188	67	126	141	55	Q	Q
RENT	101	112	137	200	71	103	C	61	79	-
BUILDING WITH 5 OR MORE UNITS	77	93	108	Q	63	94	-	46	60	Q
OWN	97	146	85	Q	64	Q	-	Q	55	Q
RENT	75	90	115	-	63	114	-	45	61	Q
MOBILE HOME	84	94	113	Q	81	94	Q	72	93	Q
OWN	84	34	115	Q	81	83	Q	70	95	Q
RENT	85	96	91	-	79	110	-	79	78	-

See footnotes at end of table.

Residential Consumption by Climate and Footage

Table 14.
(Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
YEAR HOUSE BUILT										
1939 OR EARLIER	132	123	148	178	87	128	172	72	93	128
1940 TO 1949	119	126	137	186	80	119	149	73	99	151
1950 TO 1959	122	114	148	174	93	121	158	73	106	144
1960 TO 1964	119	108	145	173	65	131	150	57	101	123
1965 TO 1969	108	90	137	167	66	118	143	70	91	125
1970 TO 1974	97	94	120	151	77	81	116	57	90	137
1975 OR LATER	82	57	89	130	56	84	104	54	76	102
OWN/RENT										
OWN	125	125	141	167	87	112	146	77	96	126
RENT	93	101	132	179	70	108	131	59	84	123
1979 FAMILY INCOME										
LESS THAN $5,000	98	106	145	205	68	103	162	64	90	114
$5,000 TO $9,999	104	115	138	157	75	100	139	66	87	114
$10,000 TO $14,999	102	106	130	135	82	113	123	61	91	102
$15,000 TO $19,999	112	103	126	166	85	109	137	75	94	103
$20,000 TO $24,999	126	110	149	168	95	125	154	71	91	131
$25,000 TO $34,999	123	109	140	161	74	114	129	62	101	119
$35,000 OR MORE	143	103	160	188	77	118	163	68	97	144
TOTAL POOR (100 PERCENT LEVEL)	105	112	156	221	70	101	161	66	95	106
TOTAL POOR (125 PERCENT LEVEL)	105	115	150	189	70	101	150	67	96	112
ORIGIN										
WHITE	113	102	136	163	76	110	142	65	91	125
BLACK	128	141	172	243	86	141	188	74	107	137
OTHER	84	96	113	190	76	76	131	46	89	118
AGE OF HOUSEHOLD HEAD										
UNDER 25 YEARS	85	92	121	120	69	98	115	61	92	108
25 TO 34 YEARS	103	98	125	154	80	108	125	64	91	108
35 TO 44 YEARS	126	124	141	170	92	122	130	74	97	142
45 TO 59 YEARS	129	122	150	177	81	112	165	72	99	129
60 YEARS AND OVER	112	113	144	168	72	110	150	63	88	119

See footnotes at end of table.

Residential Consumption by Climate and Footage

Table 14.
(Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
HOUSEHOLD MEMBERS										
1	86	93	124	169	63	95	121	51	76	100
2	108	104	133	154	76	111	143	65	85	119
3	119	122	140	169	93	108	149	76	96	134
4	131	123	149	170	89	119	137	83	103	136
5	138	151	141	173	108	126	159	77	111	147
6 OR MORE	154	168	165	195	113	136	177	99	118	93
FUEL COMBINATIONS										
USE NATURAL GAS FOR MAIN HEATING	131	110	156	193	101	143	176	76	107	140
USE ELECTRICITY FOR MAIN HEATING	60	39	65	88	47	70	88	39	62	96
USE FUEL OIL FOR MAIN HEATING	148	138	146	181	103	132	168	105	111	160
USE WOOD FOR MAIN HEATING	55	63	58	68	31	50	69	42	51	70
USE LPG FOR MAIN HEATING	105	99	130	179	91	128	167	78	100	93
USE COAL FOR MAIN HEATING	42	42	48	43	29	27	Q	-	Q	-
OTHER	100	110	96	79	88	Q	-	100	79	133
NO HEATING	34	-	-	-	-	-	-	34	-	-

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Residential Expenditures by Climate and Footage

Table 15. U.S. Residential Energy Expenditures, Not Including Wood, by Climate Zone and Heated Square Footage—April 1980 Through March 1981 (Dollars per Household)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
TOTAL HOUSEHOLDS	916	861	1025	1282	623	937	1171	584	808	1082
AREA TYPE										
URBAN	898	880	1024	1289	620	918	1221	514	784	1034
RURAL	957	796	1029	1269	627	955	1102	780	865	1210
SMSA										
SMSA	924	902	1044	1343	645	931	1196	538	779	1037
NON-SMSA	900	736	981	1126	602	943	1143	705	864	1231
UTILITIES PAID BY HOUSEHOLD										
ALL PAID BY HOUSEHOLD	940	834	1031	1280	623	945	1172	614	819	1088
SOME PAID, SOME INCLUDED IN RENT	791	876	944	1566	566	Q	-	481	594	Q
ALL INCLUDED IN RENT	740	870	1123	C	640	898	Q	413	536	-
OTHER	837	1099	867	1535	584	702	-	596	592	891
TYPE OF HOUSING STRUCTURE										
SINGLE-FAMILY DETACHED	964	898	1036	1255	673	948	1158	671	832	1095
OWN	1010	923	1044	1250	697	955	1167	711	840	1099
RENT	828	819	977	1323	621	903	960	610	776	1033
SINGLE-FAMILY ATTACHED	985	937	1015	1432	920	985	1414	396	747	705
OWN	1074	1227	1076	1430	Q	1008	1367	506	763	690
RENT	799	816	865	C	879	910	1514	334	673	Q
BUILDING WITH 2 TO 4 UNITS	822	867	1052	1558	509	776	960	464	543	Q
OWN	1190	1236	1275	1631	490	745	1011	678	618	Q
RENT	729	815	959	1366	510	783	Q	452	660	-
BUILDING WITH 5 OR MORE UNITS	703	845	926	C	533	837	-	443	572	Q
OWN	981	1447	867	C	372	Q	-	Q	631	Q
RENT	674	807	943	-	542	926	-	440	553	Q
MOBILE HOME	789	800	887	Q	689	964	Q	736	1039	Q
OWN	790	797	930	C	723	722	Q	721	1068	Q
RENT	786	809	468	-	600	1293	-	785	882	-

See footnotes at end of table.

Residential Expenditures by Climate and Footage

Table 15. (Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
YEAR HOUSE BUILT										
1939 OR EARLIER................	981	937	1060	1329	628	978	1216	583	705	958
1940 TO 1949...................	898	995	1000	1338	625	972	1067	544	772	1078
1950 TO 1959...................	919	910	1059	1218	750	889	1259	579	806	1168
1960 TO 1964...................	932	827	1030	1297	560	982	1191	531	872	984
1965 TO 1969...................	858	727	1055	1243	549	881	1221	577	773	1015
1970 TO 1974...................	900	798	987	1331	652	936	1140	621	883	1234
1975 OR LATER..................	840	569	828	1174	498	912	1046	621	845	1089
OWN/RENT										
OWN............................	1004	973	1053	1278	695	946	1175	706	834	1091
RENT...........................	742	811	952	1334	568	901	1127	506	700	956
1979 FAMILY INCOME										
LESS THAN $5,000...............	753	776	1027	1432	562	901	1185	516	747	765
$5,000 TO $9,999...............	805	934	943	1107	541	815	1033	555	743	941
$10,000 TO $14,999.............	837	844	1016	1007	672	871	972	579	823	937
$15,000 TO $19,999.............	900	839	964	1296	732	900	1058	626	804	894
$20,000 TO $24,999.............	986	779	1057	1281	782	1022	1192	729	778	1161
$25,000 TO $34,999.............	1005	930	1068	1221	589	995	1084	674	870	1008
$35,000 OR MORE................	1206	1048	1219	1495	627	1141	1391	644	873	1224
TOTAL POOR (100 PERCENT LEVEL)..	796	830	996	1556	585	908	1192	532	810	860
TOTAL POOR (125 PERCENT LEVEL)..	806	863	1014	1359	573	887	1142	534	815	928
ORIGIN										
WHITE..........................	915	810	1018	1265	613	926	1164	583	807	1087
BLACK..........................	957	1145	1136	1553	735	1146	1367	574	813	1138
OTHER..........................	711	598	659	1348	369	716	960	645	812	747
AGE OF HOUSEHOLD HEAD										
UNDER 25 YEARS.................	669	668	852	975	521	831	1003	548	773	893
25 TO 34 YEARS.................	838	795	925	1207	633	954	975	610	769	899
35 TO 44 YEARS.................	1042	1027	1074	1333	738	982	1159	640	898	1254
45 TO 59 YEARS.................	1039	957	1116	1374	706	981	1319	606	854	1102
60 YEARS AND OVER..............	877	915	1044	1101	574	877	1143	539	753	1013

See footnotes at end of table.

Table 15.
(Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
HOUSEHOLD MEMBERS										
1	686	741	917	1172	491	797	972	438	629	940
2	855	859	975	1130	613	912	1079	588	728	974
3	961	905	1069	1241	744	960	1260	694	835	1162
4	1053	1006	1074	1316	735	958	1189	743	934	1135
5	1138	1100	1102	1397	993	1106	1320	704	958	1250
6 OR MORE	1228	1334	1180	1614	888	1101	1247	742	1003	1253
FUEL COMBINATIONS										
USE NATURAL GAS FOR MAIN HEATING	815	666	896	1121	618	898	1113	509	751	984
USE ELECTRICITY FOR MAIN HEATING	797	563	867	1286	455	852	1011	547	887	1329
USE FUEL OIL FOR MAIN HEATING	1477	1360	1477	1797	1034	1339	1648	1109	1230	1600
USE WOOD FOR MAIN HEATING	663	837	754	851	384	573	721	447	611	806
USE LPG FOR MAIN HEATING	1041	981	1197	1622	900	1167	1577	823	1042	1080
USE COAL FOR MAIN HEATING	549	Q	668	559	Q	331	Q	-	Q	-
OTHER	1155	1156	1093	1112	1167	Q	-	1090	1029	Q
NO HEATING	703	-	-	-	-	-	-	703	-	-

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SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Average Residential Energy Prices

Table 16. U.S. Average Residential Energy Prices—April 1980 Through March 1981 (Dollars per Million Btu)

HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
TOTAL HOUSEHOLDS................	8.03	3.90	16.32	8.04	7.92
CENSUS REGION AND DIVISION					
NORTHEAST......................	9.21	5.14	21.99	8.04	9.96
NEW ENGLAND..................	9.91	5.96	21.83	8.07	10.28
MIDDLE ATLANTIC..............	9.00	4.99	22.04	8.03	9.75
NORTH CENTRAL..................	6.56	3.55	16.12	7.92	7.38
EAST NORTH CENTRAL...........	6.55	3.67	16.38	7.99	7.63
WEST NORTH CENTRAL...........	6.59	3.23	15.57	7.72	7.02
SOUTH..........................	9.13	3.84	15.10	8.12	8.12
SOUTH ATLANTIC...............	10.28	4.48	16.33	8.12	8.44
EAST SOUTH CENTRAL...........	8.49	3.57	12.62	8.09	7.70
WEST SOUTH CENTRAL...........	7.70	3.41	14.95	7.72	7.59
WEST...........................	6.99	3.50	14.34	7.86	7.91
MOUNTAIN.....................	6.69	3.31	15.50	7.64	7.21
PACIFIC......................	7.12	3.59	13.92	7.91	9.09
AREA TYPE					
URBAN..........................	7.45	3.96	16.97	8.05	8.55
RURAL..........................	9.53	3.62	15.35	8.01	7.84
SMSA					
SMSA...........................	7.85	3.97	17.02	8.05	8.23
NON-SMSA.......................	8.45	3.69	15.09	8.01	7.80
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE					
<2,000 CDD AND >7,000 HDD.....	7.59	3.73	15.84	7.99	7.74
<2,000 CDD AND 5,500 TO 7,000 HDD............	7.02	3.79	17.31	8.02	7.88
<2,000 CDD AND 4,000 TO 5,499 HDD............	8.59	4.53	16.63	8.04	7.83
<2,000 CDD AND <4,000 HDD.....	7.90	3.50	15.43	8.16	7.95
>2,000 CDD AND <4,000 HDD.....	10.16	3.89	16.06	8.39	8.23
UTILITIES PAID BY HOUSEHOLD					
ALL PAID BY HOUSEHOLD.........	8.02	3.82	16.01	8.05	7.93
SOME PAID, SOME INCLUDED IN RENT...........................	7.83	4.50	21.64	8.03	8.02
ALL INCLUDED IN RENT..........	8.15	4.49	19.31	8.02	7.85
OTHER.........................	8.86	4.27	18.69	8.04	7.78

See footnotes at end of table.

Table 16. (Continued)

HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
TYPE OF HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED	7.89	3.71	15.88	8.03	7.88
OWN	7.91	3.73	15.86	8.03	7.80
RENT	7.71	3.59	16.08	8.04	8.27
SINGLE-FAMILY ATTACHED	8.32	4.52	18.91	8.00	7.76
OWN	8.39	4.58	19.65	8.00	8.08
RENT	8.14	4.38	17.45	8.01	7.48
BUILDING WITH 2 TO 4 UNITS	7.47	4.40	19.02	8.07	9.00
OWN	8.06	4.69	21.19	8.12	10.20
RENT	7.25	4.30	18.31	8.05	8.02
BUILDING WITH 5 OR MORE UNITS	9.08	4.66	17.92	8.04	8.54
OWN	10.13	5.16	19.05	8.12	-
RENT	8.94	4.61	17.76	8.02	8.54
MOBILE HOME	9.38	3.59	15.02	8.22	7.91
OWN	9.43	3.58	14.76	8.25	7.90
RENT	9.22	3.63	16.10	8.16	7.97
NUMBER OF ROOMS					
1	9.71	5.94	24.35	8.02	7.93
2	8.34	4.09	18.65	8.05	7.99
3	8.28	4.37	16.96	8.03	8.36
4	8.13	3.98	16.30	8.06	7.91
5	7.88	3.83	16.04	8.03	7.90
6	7.90	3.83	16.30	8.10	7.87
7	8.12	3.94	16.30	8.02	8.14
8 OR MORE	8.06	3.79	16.22	8.00	7.53
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED					
ALL	8.54	3.77	15.54	8.02	7.64
SOME	8.05	4.09	18.36	8.06	8.15
NONE	7.59	3.91	16.36	8.03	8.01
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)					
LESS THAN 600	8.67	4.38	19.75	8.03	8.37
600 TO 999	8.14	4.03	16.39	8.07	8.09
1,000 TO 1,599	7.96	3.86	15.96	8.07	7.80
1,600 TO 1,999	8.02	3.87	16.19	8.04	7.80
2,000 TO 2,399	8.06	3.78	16.06	8.02	7.82
2,400 TO 2,999	7.83	3.83	16.50	7.95	7.77
3,000 OR MORE	7.77	3.82	16.03	8.04	7.51

See footnotes at end of table.

Table 16.
(Continued)

HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
YEAR HOUSE BUILT					
1939 OR EARLIER................	7.43	4.03	18.03	8.04	7.90
1940 TO 1949...................	7.56	3.97	16.38	8.05	7.87
1950 TO 1959...................	7.52	3.70	16.72	8.04	8.25
1960 TO 1964...................	7.81	3.90	16.17	8.04	8.15
1965 TO 1969...................	7.98	3.88	15.46	8.02	7.97
1970 TO 1974...................	9.26	3.94	15.65	8.04	7.78
1975 OR LATER..................	10.24	3.75	15.28	8.05	7.77
OWN/RENT					
OWN............................	8.04	3.82	16.06	8.04	7.86
RENT...........................	7.99	4.13	17.17	8.04	8.16
1979 FAMILY INCOME					
LESS THAN $5,000...............	7.68	4.01	16.62	8.08	8.00
$5,000 TO $9,999...............	7.75	3.94	16.36	8.02	7.99
$10,000 TO $14,999.............	8.19	4.02	16.49	8.02	8.11
$15,000 TO $19,999.............	8.06	3.87	16.16	8.01	8.12
$20,000 TO $24,999.............	7.83	3.85	15.83	8.09	7.72
$25,000 TO $34,999.............	8.15	3.86	16.02	8.04	7.76
$35,000 OR MORE................	8.42	3.81	16.84	8.04	7.49
TOTAL POOR (100 PERCENT LEVEL)..	7.62	3.99	16.55	8.03	8.01
TOTAL POOR (125 PERCENT LEVEL)..	7.68	3.99	16.52	8.06	8.08
ORIGIN					
WHITE..........................	8.09	3.87	16.16	8.04	7.88
BLACK..........................	7.51	4.13	17.93	8.06	8.08
OTHER..........................	8.55	3.68	16.44	8.09	9.48
AGE OF HOUSEHOLD HEAD					
UNDER 25 YEARS.................	7.83	3.80	15.84	8.00	7.75
25 TO 34 YEARS.................	8.16	3.91	16.27	8.03	7.92
35 TO 44 YEARS.................	8.25	3.91	16.21	8.04	8.03
45 TO 59 YEARS.................	8.03	3.92	16.52	8.05	7.90
60 YEARS AND OVER..............	7.80	3.91	16.36	8.04	7.93
HOUSEHOLD MEMBERS					
1..............................	7.94	4.04	16.84	8.07	8.11
2..............................	7.95	3.88	16.24	8.02	7.84
3..............................	8.08	3.85	16.09	8.02	7.86
4..............................	8.07	3.94	16.36	8.06	8.09
5..............................	8.22	3.90	16.27	8.06	7.76
6 OR MORE......................	7.99	3.77	16.28	8.05	7.93

See footnotes at end of table.

Average Residential Energy Prices

Table 16.
(Continued)

HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
FUEL COMBINATIONS					
USE NATURAL GAS FOR MAIN HEATING........................	6.22	3.82	17.09	7.93	15.81
WATER HEAT AND COOK WITH NATURAL GAS..................	6.12	3.88	18.41	7.85	-
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY...	6.18	3.64	16.42	7.97	16.75
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS...	7.32	4.06	15.87	-	-
WATER HEAT AND COOK WITH ELECTRICITY.................	7.17	4.29	13.54	8.16	-
OTHER.......................	6.50	4.33	20.63	7.91	14.65
USE ELECTRICITY FOR MAIN HEATING........................	13.22	4.30	13.91	7.97	8.20
WATER HEAT AND COOK WITH ELECTRICITY.................	13.66	3.94	13.76	7.96	8.62
OTHER.......................	10.69	4.33	15.55	7.98	8.14
USE FUEL OIL FOR MAIN HEATING........................	10.00	8.10	20.08	8.03	10.65
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY.......	10.02	9.37	22.28	8.00	9.34
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS.......	9.94	10.97	33.74	8.06	-
WATER HEAT AND COOK WITH ELECTRICITY.................	10.26	14.00	15.44	8.00	10.10
WATER HEAT AND COOK WITH NATURAL GAS..................	9.01	5.90	22.01	8.07	-
OTHER.......................	10.37	6.43	20.32	8.07	10.80
USE WOOD FOR MAIN HEATING.....	12.10	4.23	14.95	7.84	8.29
USE LPG FOR MAIN HEATING......	9.89	-	16.33	7.76	7.61
USE COAL FOR MAIN HEATING.....	13.24	6.44	16.49	7.92	7.97
OTHER.........................	11.50	12.24	17.98	8.41	9.69
NO HEATING....................	20.46	3.35	33.12	7.85	11.52

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NCT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. DATA MAY NOT SUM TO TOTALS DUE TO ROUNDING. PERCENTAGES ARE CALCULATED ON UNROUNDEC NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Percentage Residential Wood Consumption

Table 17. U.S. Residential Consumption of Wood as a Percentage of the Consumption of All Fuels—Natural Gas, Electricity, Fuel Oil/Kerosene, LPG and Wood (Percent of Btu)

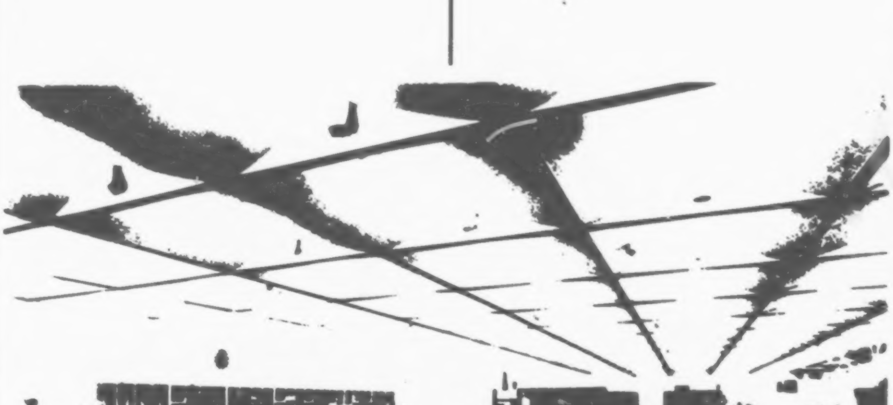
		Households Using:					
		Natural Gas as Main Heating Fuel	Electricity as Main Heating Fuel		Fuel Oil or Kerosene as Main Heating fuel	Liquid Petroleum Gas as Main Heating Fuel	Wood as Main Heating Fuel
Household Characteristics	All House-Holds		With Air Conditioning	Without Air Conditioning			
Total Households	8.2 (1.4)	2.3 (0.2)	7.9 (1.2)	18.6 (6.5)	4.6 (1.0)	6.6 (1.3)	64.1 (3.1)
Census Region							
Northeast	9.5 (4.4)	1.9 (0.4)	13.3 (5.7)	Q (Q)	4.3 (1.3)	Q (Q)	71.2 (6.4)
North Central	7.8 (2.0)	2.2 (0.4)	11.0 (2.6)	21.2 (8.6)	Q (Q)	6.5 (1.8)	67.1 (5.2)
South	8.1 (1.0)	2.2 (0.5)	6.9 (1.7)	4.3 (1.9)	4.3 (1.8)	3.7 (1.4)	58.6 (2.8)
West	6.8 (1.2)	2.7 (0.3)	4.4 (1.6)	13.1 (2.7)	12.1 (2.3)	13.1 (3.1)	52.0 (4.8)
Area Type							
Urban	2.8 (0.3)	1.8 (0.2)	3.4 (1.3)	4.7 (1.1)	2.3 (0.4)	Q (Q)	55.6 (4.4)
Rural	19.8 (3.5)	4.8 (1.0)	12.6 (1.6)	27.3 (9.0)	9.1 (2.1)	6.8 (1.4)	65.5 (3.1)
Annual Heating Degree-Days (HDD) and Cooling Degree-Days (CDD) -- Long Term Average							
<2,000 CDD and >7,000 HDD	22.8 (6.4)	3.2 (0.6)	24.2 (10.4)	49.3 (23.7)	11.5 (4.2)	12.5 (5.4)	73.6 (3.9)
<2,000 CDD and 5,500 to 7,000 HDD	4.8 (0.6)	2.0 (0.3)	8.0 (2.7)	16.8 (4.6)	5.0 (1.0)	7.4 (3.0)	57.4 (3.3)
<2,000 CDD and 4,000 to 5,499 HDD	7.6 (1.4)	2.7 (0.6)	10.8 (1.5)	13.8 (2.2)	2.4 (0.6)	7.0 (3.6)	62.7 (2.9)
<2,000 CDD and <4,000 HDD	6.9 (1.1)	2.0 (0.3)	9.8 (2.8)	- -	Q (Q)	4.8 (2.1)	50.7 (2.9)
>2,000 CDD and <4,000 HDD	3.1 (0.6)	1.7 (0.3)	3.7 (1.4)	- -	Q (Q)	Q (Q)	49.0 (13.6)

Note: Table reads: For all households using natural gas as a main heating fuel, the aggregate amount of wood burned was 2.3 percent of the aggregate consumption of natural gas, electricity; fuel oil/kerosene, LPG, and wood. One standard error of the estimate is contained in parentheses beside the estimate. The standards error is a measure of the variability of an estimate based on a sample survey. For further explanation see Appendix C "Limitations of the Data." A dash "-" represents zero, not available, or not applicable. "Q" represents data withheld because the relative standard error is 50 percent or greater. Data may not sum to totals due to rounding. Percentages are calculation unrounded numbers. See Glossary for definitions of terms used in this report.

Source: Residential and Commercial Branch, Energy End Use Division, Office of Energy Markets and End Use, Energy Information Administration, U.S. Department of Energy, Form EIA-457, The 1980 Residential Energy Consumption Survey.

Appendix A

How the Survey Was Conducted



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Appendix A

Introduction

The Residential Energy Consumption Surveys (RECS) have been designed by the Energy Information Administration (EIA) to provide information concerning energy consumption within the residential sector. Information concerning the housing unit is collected through personal interviews with adult residents of a representative national sample of households. Data concerning actual energy consumption is obtained from fuel records maintained by the household's fuel suppliers. An inventory of motor vehicles used by the household residents is also obtained at the time of the personal interview.[1]

This survey is the first RECS to: use a national sample custom-designed to meet the analytic objectives for surveys of residential energy use; sample as many as 5,500 households; provide two-day personal training sessions for interviewers; include households in Alaska and Hawaii and households on military bases; collect data on household consumption of wood; and have interviewers measure the square footage of the housing unit. Plans are to continue the RECS survey incorporating these new features and, in addition, to collect longitudinal data by revisiting a probability subsample of households at two-year intervals.

Data Collection

The fieldwork for this study was conducted by a contractor, Response Analysis Corporation of Princeton, New Jersey. The original sample consisted of 7,338 units, of which some 106 were either not used for dwelling purposes or were not habitable. Of the 7,232 habitable housing units, 598 were ineligible for this study due to a current vacancy or seasonal occupancy (occupants did not live in the units for more than half the year). Personal interviews were conducted at 5,804 of the 6,634 eligible units, for a response rate of 87.5 percent. Subsequently, mail questionnaires were sent to 648 of the 798 households that had not participated in personal interviews. Completed questionnaires were returned by 247 of these households, or 38.1 percent of those mailed. Of the total eligible households, responses were received from 91.2 percent (or 6,051 households).

The fieldwork for this study was begun in October 1980, but because the survey utilized a new sample design, materials and interviewers had to be located for a number of new sample locations. As a result, the sample work took longer to complete and the interviewing schedule was extended through April 1981. Most mail questionnaires were completed in April or May although some mail questionnaires were received in June 1981. January 1981 represents the mid-point of data collection, but November 1980 was selected as the date for determining the independent estimates of the size of the universe of households used in the ratio estimation of survey results. The primary reason for selecting November 1980 was to continue a 12-month

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[1] The Household Transportation Panel is a survey of household automobile usage and gasoline consumption using rotating subsamples from the residential survey. Data for the Household Transportation Panel were collected for the period June 1979 through September 1981. Data for the first 19 months are reported in: Residential Energy Energy Consumption Survey: Consumption Patterns of Household Vehicles, June 1979 to December 1980, DOE/EIA-0319, April 1982.

Appendix A (Continued)

interval between survey dates which had been established for the NIECS and Screener surveys. In addition, future RECS surveys are planned so that November is the mid-point of data collection.

The Interview

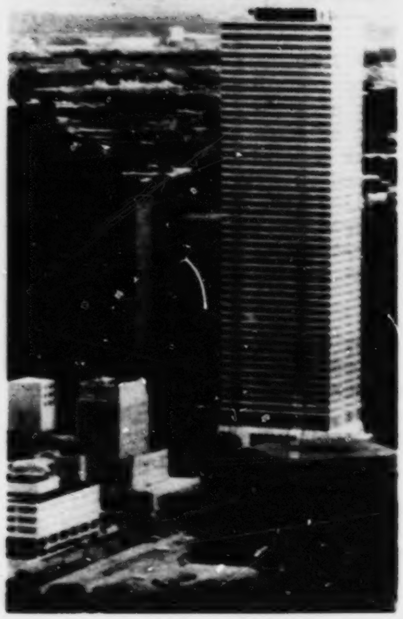
The average personal interview lasted 58 minutes with 80 percent of the interviews lasting between 35 and 86 minutes. The interview covered: structural features of the house related to energy such as insulation, doors, and windows; the heating and cooling systems and the fuels used in these systems; use of wood; energy conservation efforts; household appliances; vehicles and commuting to work; participation in a Government-sponsored weatherization program or energy audit; and, demographic data on household members. The questionnaire is reproduced in Appendix D.

At the end of the interview, respondents were asked to sign a waiver authorizing the contractor to obtain records of energy consumption from the housing unit's energy supplier(s). At this time, the interviewer also measured the dimensions of the housing unit using a retractable 50-foot metal tape measure and recording the dimensions on a rough-drawn diagram of the floor plan (See Appendix B for further details on the measurement of housing units).

Interviewers

During the period September 24 to November 1, 1980, 323 interviewers attended one of the 41 training sessions held in one of 37 locations around the country. Each session was led by a trainer, most of whom had participated in a prior four-day workshop in Princeton, New Jersey. The two-day training session for interviewers covered interviewing techniques generally, background of the residential energy consumption surveys, the household questionnaire, how to measure respondents' homes, the sampling tasks, and administrative requirements.

The training session also included a practice interview with another interviewer serving as respondent. Self-corrected tests were used in the training. The basic training document was the 62-page, "Instructions for Interviewers".



Each interviewer was required to submit a practice interview for review by RAC before proceeding to interview at the assigned housing units.

Most of the 346 interviewers used in this survey had previous interviewing experience. About 20 percent had worked on previous RECS surveys; most of the remainder were conducting their first RECS survey but had other interviewing experience either with other survey research organizations or with the U.S. Bureau of the Census. Fewer than 20 percent of the interviewers had no previous interviewing experience. The need for recruiting new interviewers will decrease in the future as trained interviewers become available in each PSU. Of the 323 interviewers who attended training sessions, 294 completed one or more interviews. Another 52 interviewers received individual training prior to conducting interviews.

Interviewers were paid on an hourly basis for their work on RECS, including time for home study, attendance at training sessions, review of completed interviews, actual interviewing time, and travel time to and from training sessions and sample clusters. Interviewers were also reimbursed at standard mileage rates for use of personal vehicles and other travel expenses. Interviewers working in locations believed to present a hazard to their safety were compensated for use of an escort.

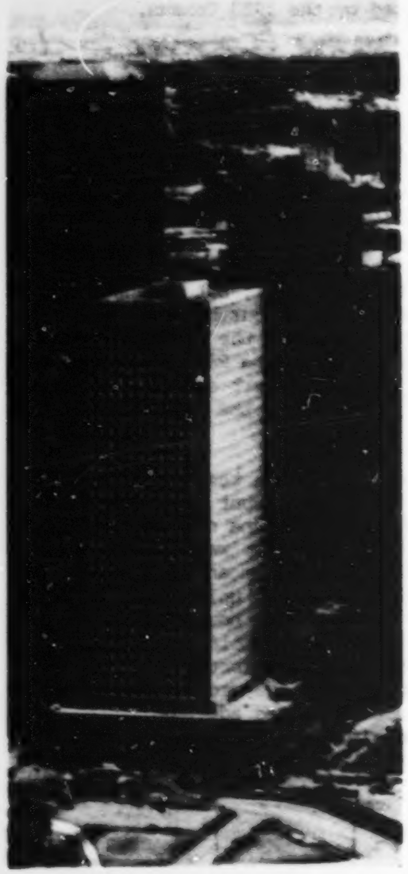
Appendix A (Continued)

Each interviewer conducted an average of 17 interviews. Fifty-one interviewers each completed fewer than six interviews; the average for this group of 51 interviewers was 2.9 completed interviews. The most interviews completed by one interviewer was 72. Twenty percent of the personal interviews were verified by telephone or mail to ensure that interviews were conducted as intended.

Sample Design

The universe for this sample design includes all housing units occupied as the primary residence in the 50 States and the District of Columbia. The sample of households used as the basis for the 1980 estimates was selected using a probability sampling design developed especially for the Residential Energy Consumption Survey (RECS). The 1980 survey represents the first time the design was used. The design required a sample with a minimum level of precision within each of the ten Federal regions and nine Census Divisions. This requirement meant disproportionate sampling in each of the 17 intersections which are created by the overlap between the Federal regions and the Census Divisions.

The 3,141 counties and independent cities in the 50 States and the District of Columbia were divided into 1,782 Primary Sampling Units (PSU's) on the basis of Standard Metropolitan Statistical Areas (SMSA), county and independent city boundary lines, and population characteristics. The PSU's were grouped into 131 strata having roughly similar population totals within each of the 17 intersections. Each stratum contained PSU's similar in several characteristics including, among others, the dominant space-heating fuel and, in some strata, similar weather conditions. Some PSU's comprising all or part of large metropolitan areas were large enough in population to comprise a stratum by themselves; 31 of the PSU's are of this type and are called self-representing (SR) because the sample from that PSU represented only that PSU. In the other 100 strata, one PSU was selected from among two or more PSU's in the stratum. Each of the 100 PSU's selected from these strata are called nonself-representing (NSR) PSU's because each PSU also represents the nonselected PSU's in its stratum.



A number of intermediate probability sampling stages preceded the final selection of RECS households. These stages included the selection of minor civil divisions (MCD's) such as cities, towns, townships, and other Census divisions within each PSU. Within the MCD's, Census tracts or enumeration districts (ED's) were selected. Finally, a segment of 25 or more housing units was selected within a tract or ED. Segments were formed from field counts in easily identified geographic units. Definition of urban/rural and metropolitan statistical areas is based on definitions using the 1970 Census results. These definitions will be updated at some time in the future to use results from the 1980 Census.

The 131 PSU's were selected in early 1980. The population size of PSU's were 1978 population estimates from the U.S. Bureau of the Census. Other data used in stratification, such as the dominant home heating fuel, came from the 1970 Census. For selection within PSU's, 1980 projected household counts for subareas of the PSU were used. The projections were based on data for minor civil divisions (MCD's) provided by the National Planning Data Corporation. Within selected MCD's, the procedure for deriving estimated numbers of households in tracts and enumeration districts was based on data from a combination of sources including Reuben H. Donnelley household address counts, 1970 Census data, and contacts with local sources of information.

Detailed field listings were created for each segment by sending a person to visit the area and identify each housing unit by street address or apartment number or other observable feature. A cluster of 25 housing units was selected from the sample segment. The ultimate cluster to be contacted for interviews (averaging about four housing units) was systematically selected from the cluster and these housing units constituted the assignments given to the interviewers. The number of ultimate clusters totaled 1,667 of which 152 clusters were for a supplementary sample of 500 households described below.

A supplementary sample of 500 households was a special feature of the design. This sample was selected in 25 strata formed by combining the 131 original strata. One PSU was selected from each of the combined strata by a probability selection among the strata forming a given one of the 25 strata. Two PSU's were self-representing and the other 23 sample PSU's were selected with probability proportionate to stratum size. The supplementary sample constitutes a national sample on its own, but is included here with the larger national sample to increase the precision of the estimates and because no special use was made of the supplementary sample households. There were early plans to use these households as a test for energy audit procedures and for reinterviews to check the reliability of information. Due to budgetary limitations, these reliability checks were not undertaken.

Survey Estimates

Survey estimates were developed to project sample results to the universe. The universe includes all households in the 50 States and the District of Columbia. Households on military installations are included. Definition of "household" is the same as that used by the Bureau of the Census. At the time of the survey, November 1980, the universe was estimated to contain 81,645,000 households based on the 1980 Census and Current Population Survey (CPS) estimates of the population updated by the 1980 Census.

Weights were calculated for each sample household. The household weight reflected the probability of selection for that household and additional adjustments to correct for potential biases arising from the failure to contact all sample housing units and the failure to list all housing units in the sample area. Contacts were not successful with 8.8 percent of the eligible units.

The adjustment for these noninterviews was designed to spread the effects of noninterviews over the interviewed sample of households in the final cluster. This same procedure was used in the National Interim Energy Consumption Survey (NIECS) and the Screener (see Glossary), but because the cluster size is smaller for the RECS (approximately four households, on the average, for the RECS as compared with about 10 in the NIECS), the effects were spread over additional clusters within the PSU whenever the adjustment exceeded 2.0. In these cases, only that part of the noninterview adjustment that exceeded 2.0 was spread over the remaining ultimate clusters in the PSU.

The failure to list all housing units in the field-listing task is a common problem in surveys of this type. The result is an undercount of housing units in the sample area and, hence, an underestimate of the number of households in the universe. This problem is treated in two ways in the RECS. One treatment occurs during the interviewing process and the second in the estimation process. During the interviewing stage, unlisted housing units or households are discovered by querying the household where interviews are conducted to determine if other households are present in the unit. In addition, the interviewer is instructed to conduct an interview at all housing units contained in the geographical area between the interviewed household and the next listed address. This tactic reduces the number of missed households but does not eliminate the noncoverage problem altogether.

The noncoverage problem is also treated by using ratio estimation to adjust selected estimates of households to official population values. Ratio adjustment took place in two stages for the RECS. The first stage adjustment was computed from information for PSU's in NSR strata only. A separate factor was created for each of twenty cells (four regions classified by five home-heating fuel categories). The first-stage adjustment for cell C was given by:

$$R_{1c} = \frac{N_c}{N'_c}$$

where N_c is the 1970 population Census total number of households in cell G for all PSU's in RECS NSR strata, and

N'_c is an estimate of N_c generated by applying RECS PSU sampling weights to 1970 Census household totals for cell C in RECS NSR sample PSU's.

The implementation of this factor reduced somewhat the amount of variance due to the sampling of PSU's. The second stage factor adjusted data from the survey after nonresponse adjustment and first stage ratio estimation to independently derived estimates of the number of households in twelve categories shown in Table A1. The second stage adjustment for category k was given by

$$R_{2k} = \frac{H_k}{H'_k}$$

where H'_k is the RECS estimate of the total number of households in category k, and

H_k is an independent estimate of the total.

The numerator is based on a linear interpolation of values for each of the twelve cells between the 1980 Census figure and Current Population Survey estimate for March 1981. The second stage factor reduced both the between PSU variance and the within PSU variance. An additional effect of applying this factor is that the final sample estimate of the number of households for each cell shown in Table A1 equals the control estimate.

Table A1. Population Estimates Used as Controls in Ratio Estimates

Census Region	SMSA-Central City	SMSA-Outside Central City	Non-SMSA	Total
Northeast.......	5,901,000	8,018,500	3,748,900	17,668,400
North Central...	5,862,400	7,969,700	7,242,100	21,074,200
South...........	7,251,100	8,074,800	11,625,300	26,951,200
West............	5,312,700	7,236,600	3,399,900	15,951,200
Total...........	24,327,200	31,301,600	26,016,200	81,645,000

Source: Estimates derived from the 1980 Decennial Census and Current Population Surveys

Minimizing Nonresponse

In an effort to maximize the validity of the survey data, a multi-wave, multi-contact approach was employed. Prior to the initial contacts, two letters were sent to each household. A letter from the Administrator of the EIA, briefly described the purposes and stressed the importance of the survey. A subsequent letter from the contractor announced the impending arrival of the interviewer. To elicit rapport and cooperation, a $2 incentive was given to the respondent before the interview. Ninety-three percent of the respondents accepted the $2.

Beginning in October 1980, interviewers made up to seven or more call-backs at different times of the day and week in an effort to minimize the number of uncontacted households. The interviewers also queried neighbors regarding the most opportune times to contact the prospective respondent. By the end of the first wave, 106 addresses were found to be nonresidential and an additional 551 were found to be ineligible. Some 5,261 personal interviews were completed leaving 1,420 nonrespondents in this wave.

A second wave was initiated in an effort to contact households that were not available during the first wave and to attempt to convince selected first-wave refusals to reconsider. A new set of letters preceded the renewed effort and, in most cases, the sampled housing units were assigned to a different interviewer. Again, up to seven or more attempts were made to contact the prospective respondents. At the end of this wave, an additional 47 addresses were found to be ineligible. Also, some 32 previously contacted potential respondents had moved and were removed from consideration. As a result of the second wave, an additional 521 interviews were completed leaving 820 nonrespondents.

A third wave was initiated in an effort to reach nonrespondents in locations that had low completion rates. The third wave produced 22 additional personal interviews.

In a final attempt to reduce nonresponse, an abbreviated version of the questionnaire (adapted for self-administration) was mailed to the remaining nonrespondents. The $2 incentive was included in the mailing. As a result of this effort, 247 additional households responded.

After three waves of personal interview attempts and one mailed questionnaire, 551 households had not responded and 32 households had moved leaving a total of 583 nonrespondents or 8.8 percent of all eligible housing units. These results are displayed in Table A2.

These efforts were successful in accomplishing the following:

- Approximately 88 percent of the households were contacted and agreed to be interviewed personally. An additional 3.7 percent of the sample households completed and returned mailed questionnaires.
- Of the 6,051 responses, 86.9 percent were obtained during the first wave of contacts; 8.6 percent were obtained during the second wave; and less than 0.4 percent resulted from third wave contacts. Some 4.1 percent were responses to the mailed questionnaire.
- Of all households which participated in the personal interviews, 33.3 percent required only one visit and 74.1 percent were completed with no more than two call-backs.

Appendix A (Continued)

- A total of 199 personal interviews were completed in the second and third waves with respondents who had previously refused to participate, representing 3.4 percent of all completed personal interviews. In addition, of the 247 mailed questionnaires which were completed and returned, 152 were from households which previously refused to participate.

Table A2. Interviews Completed by Stage

	Personal Interviews			Status After Third Wave	Mail	Final Status
	First Wave	Second Wave	Third Wave			
Total Listed Units......	7,338	1,420	820	7,338	798	7,338
Non-Housing Units						
Business, Other.......	43	-	-	43	-	43
Not Habitable.........	38	-	-	38	-	38
Non-Housing Unit......	25	-	-	25	-	25
Subtotal............	106	-	-	106	-	106
Housing Units...........	7,232	1,420	820	7,232	798	7,232
Ineligible Units						
Vacant................	393	37	-	430	-	430
Seasonal Occupied.....	7	-	-	7	-	7
Seasonal Vacant.......	151	10	-	161	-	161
Subtotal............	551	47	-	598	-	598
Eligible Units..........	6,681	1,373	820	6,634	798	6,634
Not Completed--Personal						
Moved After Contact...	-	32	-	32	-	32
No One Home...........	575	194	16	145	-	145
Eligible Respondent						
Not Home..............	40	15	-	12	-	12
Refused...............	669	406	16	[a]555	-	[a]555
Illness...............	38	8	-	8	-	8
Language Barrier......	27	7	-	9	-	9
Wrong Respondent or Unit..................	2	5	-	2	-	2
Not Contacted.........	33	154	757	23	-	23
Other.................	36	31	9	44	-	44
Subtotal............	1,420	820	798	798	-	798
Not Completed--Mail						
Unusable Address......	-	-	-	-	55	55
Post Master Return....	-	-	-	-	61	61
Returned Blank........	-	-	-	-	51	51
Returned Unusable.....	-	-	-	-	3	3
Not Returned..........	-	-	-	-	284	284
Other Not Mailed......	-	-	-	-	97	97
Subtotal............	-	-	-	-	551	551
Total Interviews Completed...............	5,261	521	22	5,804	247	6,051

[a] A household that refused an interview during any one of the three waves was classified as a "refusal" for the final status even though no one was at home in the second or third wave.

Source: 1980 Residential Energy Consumption Survey.

Appendix A (Continued)

Evaluation of Response and Nonresponse Characteristics

This section of the report will compare various response and nonresponse category rates across census region, location type, and structure type. These rates are reported in Table A3.

Several patterns are clear from Table A3. First, personal interviews enjoyed the most success in the South (89.8 percent), in non-SMSA areas (91.4 percent), and among residents of mobile homes (90.9 percent). Conversely, the interviewers had their lowest success rates in the Northeast (83.8 percent), SMSA central cities (83.3 percent), and in buildings with five or more residential units (79.0 percent). It is important to keep in mind when looking at the categories that make up these groupings that there is no guarantee that the characteristics are independent. Rather, it is highly likely that they overlap. That is to say that the Northeast has a high concentration of central cities and large apartment buildings.

The categories which were least successful for the personal interviewers were the most responsive for the mailed questionnaire. The opposite situation also holds: the categories where personal interviewers had the most success were the least responsive to the mailed questionnaire.

An added factor with regard to the results of the mail questionnaire could be the number of potential respondents who received the mail questionnaires. For example, the Northeast had a higher response rate since more were mailed out to that area of the country. This indeed turns out to be the case. Response rates by region for only those respondents to whom questionnaires were mailed are virtually the same (data not shown).

Table A3. Response Rates by Region, Location, and Type of Structure
Percent of Eligible Housing Units

Characteristic	Response Rates			Personal Interviews Nonresponse Rates	
	Personal Interview	Mail Questionnaire	Total Response	Refuse	Unable to Contact
Total..................	87.5	3.7	91.2	8.6	3.9
Census Region					
Northeast............	83.8	4.9	88.7	10.5	5.7
North Central........	87.4	3.7	91.1	9.0	3.6
South................	89.8	3.1	92.9	6.8	3.4
West.................	87.9	3.5	91.4	8.8	3.3
Location Type					
SMSA Central City....	83.3	5.5	88.8	10.1	6.5
SMSA Other Urban.....	85.9	4.7	90.6	10.9	3.1
SMSA Rural...........	89.3	2.9	92.2	8.5	2.2
Non-SMSA.............	91.4	1.9	93.3	5.6	3.0
Structure Type					
Single-Family House..	88.9	3.3	92.2	6.4	2.7
Mobile Home..........	90.9	2.1	93.0	8.4	2.7
Buildings with 2-4 Units................	86.5	4.4	90.9	8.6	4.9
Buildings with 5 or More Units...........	79.0	6.4	85.4	10.7	10.3

Source: 1980 Residential Energy Consumption Survey.

Appendix A (Continued)

The total response rate patterns with regard to highest and lowest rates are not affected by the addition of the responses to the mailed questionnaire. However, the range from highest to lowest decreases with only one exception. The highest "refusal" and "unable to contact" rates correspond to the lowest success rates for the personal interviewers, the exception being that noncentral city SMSA urban areas have a higher refusal rate (10.9 percent) than the SMSA central city areas (10.1 percent). The lowest refusal rate categories match the highest personal interviewers success groups.

Adjustment for Item Nonresponse

Item nonresponse occurs when respondents do not know the answer or refuse to answer a question or when an interviewer does not ask a question or does not record an answer. Imputations were made for nonresponse to most items which were to be used for making national estimates and items which had less than 10 percent nonresponse. Items for which national estimates are made but for which imputations were not made include questions on the presence, type, and amount of attic and floor insulation; the presence of wall insulation; and the cost of adding storm windows, doors, and insulation. For these items, the number of missing cases was considered large enough that the imputations would have introduced too much additional error.

The most frequently used imputation procedure was "hot-deck." This procedure requires sorting the file of households by variables related to the missing item. A household is then selected which has the same value on the related variables and this "donor" household supplies the value for the variable which is missing in the "donee" household.

Less frequently used imputation methods included regression estimates and use of modal values. Regression procedures were used to impute the total square footage of the housing unit in the three percent of the cases where all data were missing. Discussion of the regression procedure and other imputations involved in the square footage estimates is found in Appendix B. A few variables were imputed by assigning modal values; this was done when the distribution of available data showed a highly skewed distribution.

Table A4 shows the most frequently imputed items, the number of cases requiring imputation, and the method used.

The 247 mail questionnaires had considerable missing data since the mail questionnaire was a small subset of questions from the household interview. For the mail questionnaires, the hot-deck imputation method was used. Households were selected by sorting the file by Census region, type of structure, space-heating fuel, hot water fuel, air-conditioning fuel, number of rooms, and number of persons in the household. The donor household was matched on these characteristics and the entire set of responses from the donor household was imputed to the mailed questionnaire household. This meant that all the responses for the mailed questionnaire households were imputed except the seven matching items, weather data, fuel consumption data acquired from the household's fuel suppliers, and the geographical location of the mail questionnaire household.

Appendix A (Continued)

Table A4. 1980 RECS Items Most Frequently Imputed

Item	Cases Imputed	Percent of All Interviews[a] (6,051)	Method of Imputing
1979 Family Income..........	787	13	Hot-deck
Same Main-Heating Fuel Used Last Winter............	422	7	Hot-deck, but no cases were imputed as having changed fuels.
Most-Used Oven is/is Not Microwave...............	281	5	Hot-deck
Availability of Natural Gas..........................	254	4	Hot-deck
Year House Was Built.........	241	4	Hot-deck
Square Footage of Housing Unit........................	b	b	b
Central Heating System for the Building............	183	3	Hot-deck
Condominium or Cooperative.................	167	3	Hot-deck
Central Water-Heating System for the Building.....	122	2	Hot-deck
Second Oven is/is Not a Microwave....................	115	2	Hot-deck
Hispanic.....................	109	2	Hot-deck
Self-Cleaning Features of Most-Used Oven..............	79	1	Hot-deck
Warm Air Forced Through Ducts.......................	78	1	Hot-deck
Number of Cords of Wood Burned.......................	74	1	Hot-deck
Age of Respondent...........	67	1	Hot-deck
Type of Freezer Compartment in Most-Used Refrigerator...	53	1	Hot-deck
Age of Second Person in Household....................	49	1	Hot-deck
Most-Used Freezer is/is Not Frost-Free..............	44	1	Hot-deck
Energy Used by Second Oven..	38	1	Hot-deck
Employment Status of Third Person in the Household.....	37	1	Hot-deck

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[a] Mail questionnaires are not included. To account for these, add four percentage points to the percent listed.

[b] See Appendix B for details on the square footage imputations.

Source: 1980 Residential Energy Consumption Survey.

Rental Agent Survey

Telephone and/or in-person interviews were carried out with rental agents and landlords of selected RECS households who did not pay directly to utility companies and fuel suppliers for household fuel use. Primary purposes of the rental agent survey were to obtain additional information on fuels for specified end uses and on actual fuel consumption for buildings containing these households. The rental agent survey was limited to those primary sampling units where there were at least three or more households whose fuel was included in their rent.

Appendix A (Continued)

After an advance letter from DOE, telephone interviews were attempted wherever it was possible to reach the rental agent or his/her deputy by phone. Telephone interviewing was conducted during the week of June 22, 1981.

Personal interviews were conducted under the following circumstances: when it was not possible to reach the rental agent by telephone; where interviewer travel costs would not be excessively high; and, when a signed authorization had not been received. The personal interview included a request for the rental agent's signature on an authorization form that would permit Response Analysis to contact utility companies for building consumption data.

Rental agents whose utility bills covered nonresidential purposes were not requested to sign an authorization form if five percent or more of the billing was for nonresidential purposes. Personal contacts were made during July and early August, 1981.

Altogether, 283 rental agents were interviewed by telephone or in-person. These 283 interviews covered 551 households in 346 structures.

In those cases when a discrepancy occurred between the rental agent's report and the household's report, the rental agent's report was accepted as the "true" one. Altogether, 104 changes were made, 31 in the main heating fuel, 27 in supplementary heating fuel, 40 in water-heating fuel, and 6 in air-conditioning fuel.

The fuel consumption records acquired from the fuel suppliers will be used to determine whether modifications should be made in the consumption imputations for households not paying their own fuel bills. Preliminary results of this analysis are found in a later section, "Bias in Estimates of Fuel Usage in Apartments".

Editing Completed Questionnnaires

Interviewers mailed completed questionnaires to the contractor, where they were carefully reviewed. The first step in the review process was to verify the accuracy of the basic identifying information. Next, the questionnaires were manually reviewed by two editors to insure completeness and the logical consistency of selected patterns of responses and to prepare the questionnaires for translation into machine-readable form. All keypunching was fully verified. Finally, the data were machine-edited to further insure completeness, logical consistency, and the legitimacy of coded values. The computer editing utilized a proprietary software package called EDITOR II.

The contractor attempted to resolve inconsistencies or ambiguities in the data internally, by reference to other parts of the questionnaire. In the event that these efforts failed to resolve the problem, the contractor made telephone contact with a member of the household in question.

Additional editing resolved discrepancies among the household interview, the rental agent survey, and the information from fuel suppliers. For example, information on the fuel used in apartment buildings was taken from the rental agent survey to correct the data from the household. In other cases, the supplier records provided evidence on what fuel was a main source of heat. The data, therefore, do not always represent the respondents' reports, exclusively.

Appendix A (Continued)

Fuel Supplier Survey

The overall objective of the fuel supplier survey was to provide data on which to estimate the annual fuel consumption and expenditures of sample households. Four utility fuels were covered in the annualization—electricity, natural gas, fuel oil, and LPG.[1] For each of the fuels, the goal was to obtain complete consumption records for the year April 1, 1980 through March 31, 1981.

Toward the end of the household interview, each household reported for each fuel used, whether or not the fuel was paid for by the household, included in rent, or paid another way. For those households that paid directly, the respondent was asked for the names, addresses, and telephone numbers of the fuel companies supplying the household; these respondents were also asked to sign a waiver, authorizing Response Analysis to collect consumption data from the suppliers.

Altogether, the fuel supplier survey included initial contact attempts with 1,289 companies. The number of companies in the survey supplying each fuel and the total number of households supplied are shown in Table A5.

Table A5. Companies in Fuel Supplier Survey and Number of Households Supplied

	Number of Companies[a]	Number of Survey Households Supplied[b]
Electricity......	297	5,239
Natural Gas......	156	2,913
Fuel Oil/ Kerosene.........	630	818
LPG..............	269	495

[a] The total number of companies in the survey was 1,289. These included 44 that supplied both electricity and natural gas; one that supplied electricity, natural gas, and LPG; and 17 that supplied fuel oil and LPG.

[b] These figures respresent the number of households who signed an authorization form and who paid directly to the utility company for all uses of fuel. Excluded are 25 fuel-oil households and 10 LPG households supplied by unknown companies.

Source: 1980 Residential Energy Consumption Survey.

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[1] Households using LPG only for outdoor cooking grills were not included in the LPG data collection; LPG used by these households is excluded from consumption and expenditures estimates. Data on usage of woodfuel were collected during the household interview, since it was not practical to collect these data from suppliers as is done with the major home fuels.

Appendix A (Continued)

Data Collection Procedures

Data collection procedures for electricity and natural gas companies included at least the following steps:

- An initial letter from the Administrator of the Energy Information Administration, addressed to the president or other official outlining the general nature of the request for participation. This letter also announced that a telephone contact would be made to determine the name of the person to whose attention the survey materials should be sent. Enclosures in the letter included: a printed statement "About the Residential Energy Consumption Survey," specimen copies of reporting and authorization forms, and a postage-paid postcard with a checklist of available publications and data tapes;
- The telephone contact referred to in the initial letter;
- The mailing of survey materials to the person named as contact person;
- A follow-up telephone contact a few days later to answer questions or discuss survey procedures as necessary;
- Completed forms or copies of records returned by mail and;
- A letter from the EIA, thanking the company for their effort.

The personal contacts established at an early point largely precluded mailings of materials to an inappropriate person and the delays that might develop from such mailings.

Procedures for fuel oil/kerosene and LPG dealers were the same as for electric and natural gas companies through the mailing of survey materials to the company person named as the contact. These companies, however, most often had only one or two households for which information was to be supplied and data collection was generally completed by telephone. An earlier pretest of the procedure had indicated a somewhat greater likelihood that companies would respond by telephone than as a result of a request to complete and return the forms by mail.[1] Companies that chose to return the forms by mail, however, were not discouraged from doing so. Additional contact with companies and households were sometimes required in order to identify the correct record in the company files.

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[1] The test was based on requests for fuel oil or LPG consumption records for 137 households. Households were randomly divided into two groups, with two-thirds of the households in the mail-back procedure, and one-third in the telephone procedure. Remainder telephone calls were made to companies for which the mailed procedure was used. Data were received for 89 percent of households in the telephone procedure (Sample size=46) and for 74 percent of households in the mail-back procedure (Sample size=91). Response rates are based on companies with good mailing addresses and telephone numbers. In addition to higher response rate suggested by the results for the telephone procedure, telephone contacts are useful in reducing the number of ambiguities which appear in records submitted by mail.

Appendix A (Continued)

Energy Consumption Records

The fuel supplier survey was conducted for households that paid their own fuel bills directly to the supplier and authorized access to their records. These limitations meant that imputations of fuel consumption were required for households without consumption records (their fuel bills were included in the rent) and for households that did not permit access to their records.

The lack of records is most serious for households using natural gas and fuel oil or kerosene (See Table A6.) About one in six of these households have no records because their consumption is included in the rent or paid for in some way other than by a direct payment of the household to a fuel supplier. (See "Rental Agent Survey" which describes one method used to acquire records for these types of households.)

The proportion of households that did not sign authorization forms (access to records denied) was in the range of six to eight percent for the four fuels. Most households that signed authorization forms did so at the time of the personal interview or at the time of completing the mailed questionnaire. However, to maximize the number of households with records,

Table A6. Energy Consumption Records and Missing Data for Survey Households Using Electricity, Natural Gas, Fuel Oil/Kerosene, or LPG (Percent of Households Using the Fuel)

	Electricity	Natural Gas	Fuel Oil/ Kerosene	LPG
Total Households Using the Fuel......................	100.0	100.0	100.0	100.0
(Sample Number)......................	(6,048)	(3,725)	(1,132)	(574)
Useable Records Received from Fuel Supplier[a]...............	82.5	75.2	54.6	65.5
Unuseable Records Received from Fuel Supplier.................	2.5	1.5	10.9	11.2
Household Pays Directly to Supplier--No Record Available for the Household..................	8.0	7.2	16.2	19.0
Household Not Identified in Company Records..................	1.4	1.4	5.6	9.2
Company Refused to Participate...	0.2	0.1	1.2	0.4
Company Unknown or Not Located...	-	-	2.2	1.7
Authorization Form Not Signed....	6.4	5.7	7.2	7.7
Fuel Used Included in Rent or Paid in Other Way[b].................	7.0	16.1	18.3	4.3

[a] Data were unuseable for electricity and natural gas if the records covered fewer than five months and for fuel oil/kerosene and LPG if the record covered less than one year.

[b] Includes households with mixed payment methods: one or more uses of a specified fuel paid directly to a supplier, and other uses included in rent or paid in other way.

Source: 1980 Residential Energy Consumption Survey.

a follow-up request was mailed to those who did not sign a form at the time of the personal interview. About four percent of this group returned signed forms in response to the mailed request, and were therefore, included in the fuel supplier survey.

Table A6 shows that factors affecting nonresponse are somewhat different for fuel oil/kerosene and LPG than they are for electricity and natural gas. For example, the most frequent reason for nonresponse from fuel oil/kerosene and LPG dealers was their inability to identify survey households in their company records. Some dealers provide these fuels to households on a cash-and-carry basis and simply do not keep records of individual purchases. A second reason related to fuel oil/kerosene and LPG, but not to electricity and natural gas, was the inability to locate the fuel oil/kerosene or LPG dealer. Some companies were no longer in business; others could not be contacted during the survey period even after repeated attempts over a period of several months; and some cash-and-carry customers could not identify their suppliers.

Refusal of companies to participate in the survey was a significant factor only for fuel oil/kerosene companies.

Some additional factors related to the usability of fuel records are discussed in the section on imputations and adjustments for missing data.

Data Collection Dates

The first set of advance letters were mailed to utility companies during the first two weeks of April 1981. The cut-off date for receipt of useable information was September 30, 1981.

Fuel Consumption Imputations

Not all the fuel records that were collected in the fuel suppliers survey could be used. For example, some covered too few months of usage and for others it was uncertain how the records were incomplete. The extent of these unuseable records is shown in Table A6. The problem of unuseable records is small for the metered fuels. For electricity, 3 percent of the records covered less than 146 days and therefore were labeled unuseable. The rate for natural gas was smaller at 2 percent. However, for fuel oil, kerosene, and LPG, the problem of unuseable records is more serious inasmuch as 11 percent of these records are unuseable. One reason for this is that partial year records of electricity and natural gas usage are considered useable whereas a partial year record for the storage fuels (fuel oil, kerosene, LPG) is not used.[1] Information from the respondent (number of deliveries, number of suppliers used, estimated gross usage) is used as a basis for declaring a record incomplete. This same information has not been used to reconstruct an incomplete record.

Households with unuseable records, as described above, and households with no records had their fuel consumption imputed using regression modeling techniques. The regression consumption models were developed using RECS sample households for which approximately full year data were available and acceptable. Separate regression models were developed for the four fuels; electricity, natural gas, fuel oil/kerosene, and LPG. Fuel oil and kerosene were treated as if they were identical fuels. The number of kerosene users in the sample is very small and the number of useable consumption records for these households is even smaller, since many kerosene users are "cash and carry" customers who leave no records of

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[1] The number of households with partial year records, as a proportion of total households, is 6.4 percent for electricity and 5.8 percent for natural gas.

Appendix A (Continued)

Table A7. Energy Consumption Records and Missing Data for Survey Households Using Electricity, Natural Gas, Fuel Oil/Kerosene, or LPG by Type of Housing Structure (Percent of Households Using the Fuel)

	Total Households Using the Fuel	Mobile Home	Single-Family	2 to 4 Units	5 or More Units
Electricity....................	100.0	100.0	100.0	100.0	100.0
(Sample Number)................	(6,048)	(348)	(4,283)	(709)	(708)
Useable Record.................	82.5	78.7	89.3	71.2	54.9
Unuseable Record[a].............	2.5	4.0	2.0	3.5	4.0
Records Not Available..........	8.0	7.8	7.3	10.4	9.5
Fuel Used is Included in........ Rent or Paid in other Ways[b].....	7.0	0.5	1.4	14.8	31.6
Natural Gas....................	100.0	100.0	100.0	100.0	100.0
(Sample Number).................	(3,725)	(116)	(2,603)	(538)	(468)
Useable Record..................	75.2	70.7	89.7	55.2	18.8
Unuseable Record[a]...............	1.5	0.9	1.5	2.4	1.1
Records Not Available...........	7.2	6.9	7.1	8.7	5.8
Fuel Used is Included in........ Rent or Paid in Other Ways[b].....	16.1	21.6	1.7	33.6	74.4
Fuel Oil/Kerosene...............	100.0	100.0	100.0	100.0	100.0
(Sample Number).................	(1,132)	(59)	(781)	(146)	(146)
Useable Record..................	54.6	47.5	68.4	37.0	1.4
Unuseable Record[a]...............	11.0	23.7	12.4	8.9	0
Records Not Available...........	16.2	23.7	18.7	14.4	1.4
Fuel Used is Included in........ Rent or Paid in Other Ways[b].....	18.3	5.1	0.5	39.7	97.3
LPG.............................	100.0	100.0	100.0		
(Sample Number).................	(574)	(142)	(143)	(22)	(7)
Useable Record..................	65.5	58.5	70.0	(9)	(2)
Unuseable Record[a]...............	11.2	15.5	9.7	(2)	(1)
Records Not Available...........	19.0	19.0	18.4	(6)	(2)
Fuel Used is Included in........ Rent or Paid in Other Ways[b]......	4.4	7.0	2.0	(5)	(2)

[a] Data were unuseable for electricity and natural gas if the records covered fewer than five months and for fuel oil, kerosene, and LPG if the record covered less than one year.

[b] Includes households with mixed payment methods: one or more uses of a specified fuel paid directly to a supplier, and other uses included in rent or paid in other way.

The reason consumption and expenditures data are so often imputed for multi-unit structures is that energy use is not directly metered for individual apartments. A master meter registers the usage for a number of units in the building. Under these circumstances, there is no way of measuring the consumption of individual apartments and imputations based on metered units may be biased since the imputations assume similar energy use for metered and nonmetered apartments.

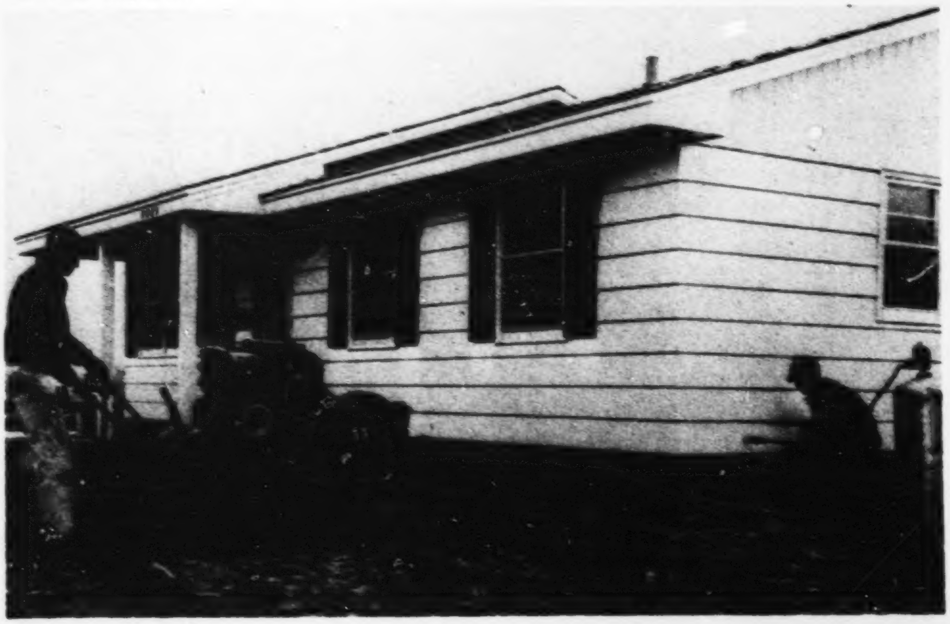
Other segments of the data where the lack of useable records may lead to an imputation bias include: natural gas and fuel oil/kerosene for apartments in smaller buildings (2 to 4 units per building); fuel oil/kerosene and liquid petroleum gas used in mobile homes. Useable records in these segments were obtained for between 37.0 percent and 58.5 percent of the households.

Bias in Estimates of Fuel Usage in Apartments

Concern with the large amount of imputed fuel data for apartment units led to a special effort in 1981 to obtain consumption records for apartment buildings. This effort utilized the permission of the apartment building's agent to obtain actual fuel records for the building. These records were used to estimate fuel consumption for each apartment in the building including the sample units that were the main concern of the collection effort. The building's fuel use was allocated to individual apartments proportionate to the number of units in the building. A comparison of these estimates, derived from actual records, with the imputed values assigned by the regression modeling, indicates the following bias in some imputed values:

Households Using:	Imputed Values Are:
Electricity with air conditioning	Too low by 50%
Electricity without air conditioning	Too high by 10%
Natural gas for space heating	About right
Natural gas, but not for space heating	Too low by 50%

The number of records for fuel oil and LPG were insufficient for making estimates of the bias in their imputed values. In future RECS surveys, the imputations for fuel use in apartments will be corrected to counteract the imputation bias. The bias has not been corrected for data contained in this report.



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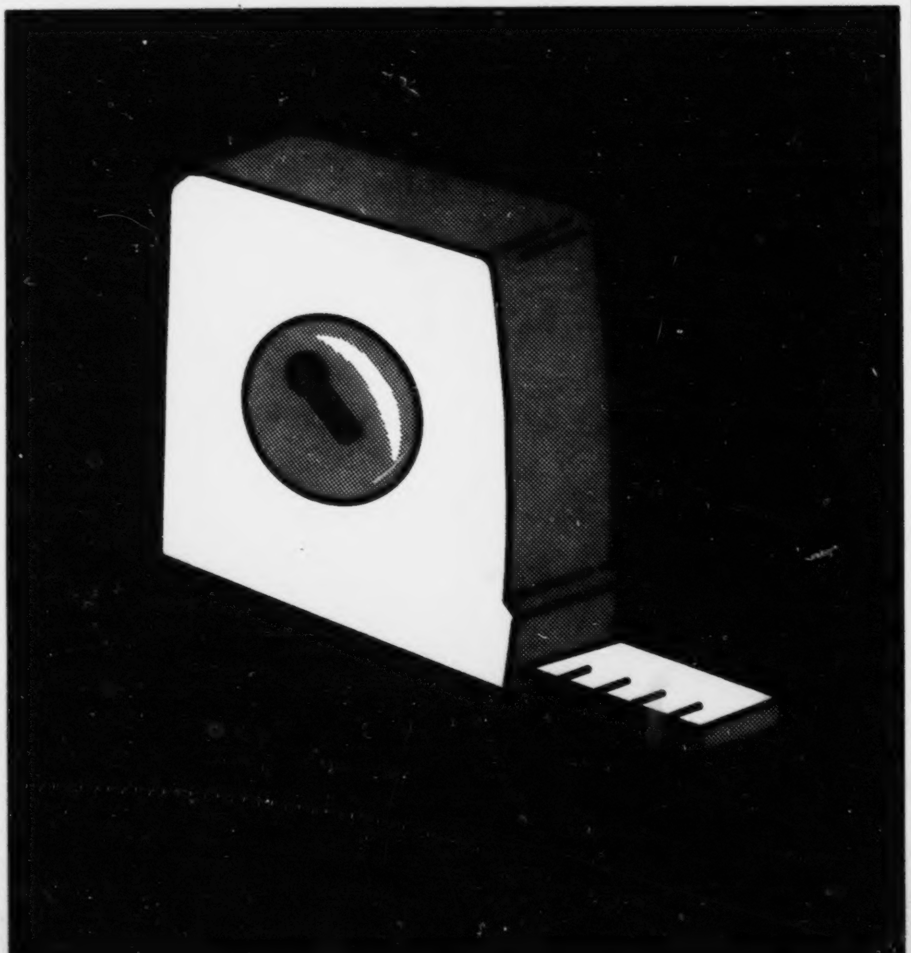
Appendix B

Estimates of the Size of U.S. Housing Units in Square Feet



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Appendix B

Estimates of the Size of U.S. Housing Units in Square Feet

Interviewers for the 1980 RECS survey were given 50-foot tape measures and were instructed to measure the dimensions of each housing unit. The instructions were to measure the "area enclosed from the weather". This included garages attached to the house, attics that were either heated or finished, and basements that were enclosed from the weather (See "Square Feet" in Glossary for further definition). Interviewers also recorded the dimensions of areas that were heated and unheated. This further breakdown into heated and unheated areas provides a closer approximation to the area of the housing unit which places the demand on the heating system and, therefore, is the figure which may prove to be more useful in analysis of residential energy consumption. All measurements were rounded to the nearest foot by the interviewer or in the editing process. Interviewers were given an option of measuring the home from the inside, taking into account the thickness of inside walls, or from the outside. In 108 cases, the measurements were taken from a floor plan. These measurements provide the first data on a national sample of all types of residential housing units including apartment units and mobile homes.

In 97 percent of the cases, usable measurements were acquired. In 3 percent, the measurements were either not usable or were not made. Although most cases contained the basic information, some imputations were required to produce a final set of three figures for each housing unit:

HOMEAREA = total square footage of area enclosed from the weather

HEATED = total square footage of heated area

UNHEATED = HOMEAREA-HEATED = total square footage of unheated area.

Table B1 indicates the number of cases with missing data. The imputations required: standardizing all measurements to outside measurements when the measurement was inside; characterizing a measurement as inside or outside when this was unknown; apportioning the total space between heated and unheated when this proportion was unknown; and estimating the total square footage when the measurements were not made or not usable.

Scaling Up to Outside Measurements

As shown in Table B1, 4,729 homes had complete dimensions for the total area, the heated area, and the unheated area. The only adjustment required was to scale up the measurement for the 2,076 homes that were measured on the inside. The inside measurements were standardized to outside dimensions. The scaling value was determined for each housing unit as a quadratic function of HOMEAREA for the housing unit.[1]

$$\text{SCALE} = 1.034 + 6.5\text{E-}05 \times \text{HOMEAREA} - 6.0\text{E-}09 \times (\text{HOMEAREA})^2 \qquad (1)$$

---

[1] This equation was developed in the following manner: a regression model of square footage for the 2,653 housing units with complete data was applied to the 2,076 housing units with complete inside dimensions. The ratio of the estimated outside measurements to the actual inside measurements was computed. A quadratic equation was fit that expressed the relationship between the ratio and the inside measurement.

This formula indicates that the larger the HOMEAREA, the larger will be the scaling-up value. These scale values, which increased the inside measurements, ranged from 6.4 percent to 17.4 percent depending on the size of HOMEAREA. For any case where HOMEAREA was less than 500, SCALE was set to 1.064; for HOMEAREA greater than 3,000, SCALE was set to 1.174.

Table B1. Completeness of Data on Square Footage of Housing Units

Amount of Information Collected	Number of Households	Percent
Complete Set of Dimensions..........	4,729	82
Outside Measurement of Home.......	2,653	46
Inside Measurement of Home........	2,076	36
Unknown Whether Dimensions are for Inside or Outside of the Home.......	715	12
Information Available on Heated and Unheated Areas................	574	10
Information on Heated and Unheated Areas Also is Missing....	141	2
Basement Dimensions Missing.........	176	3
All Dimensions Missing or Not Usable............................	184	3
Total.............................	5,804	100

Treatment of Housing Units With Some Missing Data

The 574 cases lacking information as to whether the measurements were inside or outside measurements or where the measurements may have been a combination of both inside and outside measurements were treated to a hot-deck imputation scheme.[1] Those cases where the imputed method of measurement became inside were then scaled up to outside dimensions using equation 1.

The 141 cases lacking information on the ratio of heated to unheated space as well as whether the measurements were inside or outside were treated to a hot-deck procedure. The donor household provided information as to whether the measurement was inside or outside and also provided the ratio of heated to unheated area. The inside measurements were scaled up to outside dimensions.

For the 176 cases missing basement dimensions, the basement area was imputed using a simple regression based on the area of the first floor. The heated and unheated areas were determined or imputed and then added to known totals for the remaining floors. The total area was then scaled up to outside dimensions, if necessary.

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[1] See Glossary for explanation of hot-deck imputation.

Appendix B (Continued)

Regression Model

Regression equations were used for the 184 cases with no usable data. One of the regression equations is given below.

$$\begin{aligned}\text{HOMEAREA} = & -222 + 111 \times \text{NROOMS} + 137 \times \text{TYPEHOME} \\ & + 257 \times (\text{NCOMBATH} + .5 \times \text{NHAFBATH}) \\ & + 17.3 \times \text{BUILTYR} + 6.2 \times \text{INCOME79} \\ & + 16.8 \times (\text{DOOR1ALL} + \text{DOOR2ALL} + \text{DOOR3ALL} + \text{WINDOWS}) \\ & + 669 \times \text{BASEMENT}\end{aligned} \tag{2}$$

The variables within the equation are described in Table B2. Another equation used the size of the largest room as an additional independent variable for cases when this information was available. A third equation was developed for houses without basements.

Having imputed HOMEAREA using the regression model, a hot-deck procedure was used to impute the ratio of heated and unheated space. All estimates were then scaled up. This was necessary since the regression equation estimated inside dimensions.

Table B2. Variables in the Regression Equation Used to Impute the Total Square Footage of the Housing Unit

Variable Definition	Question Number
NROOMS - Number of Rooms in the home..............	7
TYPEHOME - Single-Family or Nonsingle-Family (Mobile home included with Nonsingle-Family)..	Item 1 in the Housing Unit Record Sheet
NCOMBATH - Number of Complete Bathrooms[a]..........	15
NHAFBATH - Number of Half-Bathrooms[a]..............	15
BUILTYR - Year the Home was Built.................	3
INCOME79 - 1979 Family Income.....................	154
DOOR1ALL - Number of Sliding Glass Doors to the Outside[a]...	59
DOOR2ALL - Number of Outside Doors with Glass Panels[a]...	59
DOOR3ALL - Number of Regular Outside Doors[a].......	59
WINDOWS - Number of Windows in the Home...........	65
BASEMENT - Basement in/Not in the Single-Family or Mobile Home...................................	54

[a] For each of the variables NCOMBATH, NHAFBATH, DOOR1ALL, DOOR2ALL, and DOOR3ALL, the values for "five or more" were collapsed into one category.

[b] For this analysis, values for houses built from 1975 to 1981 have been collapsed into one category.

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Appendix C

Limitations of the Data

$$RSE(X/Y) = \sqrt{RSE^2(X) + RSE^2(Y)}$$

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Appendix C

Introduction

Data from the 1980 Residential Energy Consumption Survey are subject to many sources of sampling error, nonsampling error, and bias. Sampling error is a measure of the variability in the data because a sample of households was surveyed rather than the entire population. Because the survey used probability sampling techniques, it is possible to estimate sampling errors of the survey estimates and use these sampling errors as a guide in making inferences from the sample estimates to the total population. Estimates of sampling errors are presented later in this appendix.

Nonsampling error and bias are measures of variability due to the conduct of the survey. They can include population undercoverage during sampling, response bias and variance, interviewer error, coding and/or punching error, and nonresponse bias. The wording and format of survey questionnaires, the procedures used to select and train interviewers, and the quality control built into the data collection, receipt, and processing operations were all designed to minimize these sources of error (for discussion of these procedures, see Appendix A—"How the Survey was Conducted"). In addition, response adjustments and ratio estimation were incorporated into the survey estimator to help reduce both sampling and nonsampling error. These procedures are also discussed in Appendix A.

Completeness of Data

This section discusses a number of factors related to the completeness of the consumption and expenditure data. Data are not collected for the following two types of housing units:

- Vacant housing units. These units may have minimal heating for protection from the weather and lighting for security even though they are vacant. The Annual Housing Survey (AHS) estimated that vacant housing units numbered about 5-1/2 million in 1977.
- Second homes for the owner's use. The AHS estimated these homes numbered about 3 million in 1977.

These two types of units are not included primarily because of the difficulty in acquiring data and limitations in the availability of funds. RECS data are collected by interviewing someone who knows the housing unit and who can sign an authorization form for release of fuel records from the fuel supplier. In these units, that type of person is not likely to be available.

In addition, the consumption and expenditures data for the household's primary residence does not include the following fuels:

- Gasoline and other fuels used in household vehicles. The RECS survey collects gasoline data through monthly purchase diaries from a subset of respondents comprising a Household Transportation Panel and is reported separately.
- Wood used for heating. Although wood consumption data are collected, they are not integrated with other data but are reported in a separate table. This was

done because the wood data (1) are for the 12 months prior to the interview rather than the April-1980-through-March-1981 period, and (2) are probably inflated estimates. Evidence indicates that more detailed questioning often leads a respondent to lower estimates of wood usage. Some change in the questioning procedures and exhibits used is being planned for future RECS surveys. These changes are designed to reduce confusion between a cord and a face cord (a face cord is four feet high and eight feet wide but the depth varies according to the length of the cut wood.) Although the price of the most recent purchase of wood was collected, no attempt was made to use these data to estimate the total expenditures for wood.

- LPG used in outdoor gas grills, for camping, or other recreational activities occurring away from the home.
- Coal, coke, corncobs, charcoal, alcohol, purchased steam, solar used for household purposes.

The effect of these omissions is to underestimate the amount of energy consumed in the residential sector.

Upward adjustments were not made to account for the omissions noted above. The effect of these omissions on average consumption and expenditures per household is difficult to assess and will require further methodological research. The most serious omission because of its size is for wood fuel consumption. The size of the underestimate for the omission of wood can be estimated from data collected in the survey and is estimated to equal 10 million Btu. If added to the average household energy use, the average would increase from 114 million to 124 million Btu. This estimate of woodfuel use is subject to the errors affecting data on wood fuel consumption (See "Wood Burned" in the Glossary).

One source of over-counting arises because some household bills contain nonhousehold uses such as for a welding shop or drying grain. Double-counting could also occur when an owner's billing record also contains consumption for a rental unit. RECS respondents estimated the amount of this nonhousehold use which is included on their bill. Using these estimates, downward adjustments were made for individual households to subtract their nonhousehold uses from their consumption data.

The reader should also be aware that the data for fuel oil, kerosene, and LPG is for fuel delivered to the household between April 1, 1980 and March 31, 1981, not for fuel consumed. For this reason and because fuel oil/kerosene and LPG data contain a higher proportion of unsuccessful attempts to acquire actual fuel bills, these data should be viewed as less reliable than the electricity and natural gas data. Readers should also be aware that natural gas and fuel oil data for apartment buildings of 5 or more units is based largely on imputed estimates and, therefore, may contain an unknown amount of error from the imputation procedures.

Sampling Errors

The form of the sampling error that is presented in this Appendix is the relative standard error. For a given survey statistic, Y, the relative standard error, RSE(Y), is given by

$$RSE(Y) = (S_Y/Y) \times 100\%$$

Appendix C (Continued)

Thus the standard error of Y, the error Form used in the text of this report, is given by

$$S_Y = RSE(Y) \times Y/100.$$

Tabulation of Sampling Errors

Tables C2 through C14 give the RSE's for a subset of the statistics presented in this report. These tables give the RSE's for all of the statistics listed in Tables 1, 14, and 15 as well as the RSE's for selected statistics listed in Tables 5 through 13, and Table 16. The standard error for statistics in Table 17 are listed in parentheses beside the statistics in the Table. These RSE's were estimated using a half-sample estimation procedure. This procedure is summarized later on in this Appendix.

Guidelines for Obtaining RSE's Not Shown in Tables

This section presents guidelines for obtaining RES's for statistics not presented in Tables C2 through C14. The guidelines for the special case where the designated RSE's correspond to household counts or percentages are presented first. A general approach for RSE's corresponding to all other statistics is then outlined.

Household Counts. The majority of the tables in this report have one or more columns which give an estimate of the number of households that have a certain set of characteristics. The RSE's for some of these household counts are given in Tables C2 through C14 . The rest of the RSE's can be calculated using the procedure presented in Residential Energy Consumption Survey: Housing Characteristics, 1980. This procedure takes into account the use of control totals in the estimation of the total number of households and the type of characteristics used in defining the cell for which the household count applies. If the household count is smaller than 8 million, then the general approach given below could be used as a short cut method. The RSE's for household counts that exceed 8 million may need to be corrected for the use of control totals. The referenced report above describes how to make this correction (see pages 307-308).

Percentages. Tables 2, 3, and 4 are tables of percentages that are based on totals given in Table 1. Set P = 100 X/Y. For Table 2, a conservative estimate for RSE(P) that can be obtained from the RSE's listed in Table C2 is RSE(P) = RSE(X). For example, Table 2 shows that 33.0 percent of all Btu consumed in the residential sector was consumed by households living in structures built before 1940. From Table C2, RSE(X) = 3.8 percent.

For Tables 3 and 4 the conservative estimate is

$$RSE(P) = \sqrt{RSE^2(X) + RSE^2(Y)}.$$

These conservative approaches are recommended following inspection of the RSE's. The conservative estimate will be close to RSE(P) when P is small. Similarly as P approaches 100 percent the value of RSE(P) becomes small relative to the conservative estimate.

General Approach. An abbreviated procedure for producing an error curve for Tables 5 through 13 and Table 16 is discussed below. It is similar to the one presented in Residential Energy Consumption Survey: Housing Characteristics, 1980. It is based on the assumption that the log of the RSE(X) is approximately linearly related to the log of the number of households over which X applies.

The number of households that correspond to statistics presented in Tables 7 through 13 are given in the same tables. The number of households that correspond to statistics presented in Tables 5, 6, and 16 can be found in Tables 7 through 13. The number of households covered by the column headed by "All Households" in Tables 5 or 6 and "All Fuels" in Table 16 correspond to the column headed by "Number of Households" in Table 9. Three households in the RECS sample did not use electricity or any fuel except wood. These three households represented somewhere in the order of 30,000 households nationally. These three households were not used in the tabulation for Tables 5 through 16. They were used in the tabulation for Tables 1 through 4 and Table 17.

The RSE's for the national totals and averages plus totals and averages for the Census regions and divisions are given in all tables. These RSE's can be used to approximate the error curves for the individual columns in each table. From these curves, the RSE's of most of the other statistics in Tables 5 through 13 and Table 16 can be estimated. The RSE's for statistics in Tables 1, 14, and 15 can be found in Tables C2, C12, and C13 respectively. The RSE's for the percentages in Tables 2, 3, and 4, can be calculated as described earlier in the section, "Percentages."

A description of the calculation and use of the error curves is as follows: let Y be the statistic for which we desire an RSE. Let X_1 thru X_{14} be the national statistic and Census regions and division statistics for the same column and table as Y (Some Census divisions may not be listed). Let N_1 thru N_{14} be the number of households that X_1 thru X_{14} represents, respectively. Regress log [RSE(X_i)] on log (N_i) for i equals 1 through 14.

Table C1. Clustering Factor for Calculation of Sampling Error

Column A Cell Definition	Column B Value of F_y
Heating and Cooling Degree-Days	1.5
Availability of Natural Gas for Nonusers of Natural Gas	1.2
Utilities Paid by Household	1.2
Use Any Natural Gas	1.1
Main Heating Fuel	1.1
Type of Housing Structure (Cross with Own/Rent)	1.1
Main Heating Equipment	1.1
Main Cooking Fuel	1.1
Main Outside Wall Material	1.1
Main Water-Heating Fuel	1.1
Urban/Rural Status	1.1
Origin (Race)	1.1
Number of Stories	1.1
Census Region	1.0
SMSA Status	1.0
Secondary Heating Fuel	1.0
Central Main Heating System for Building	1.0
Year House Built	1.0
Amount of Wood Burned	1.0
Types of Appliances Used	1.0
Own/Rent	.9
Number of Windows	.9
Number of Complete and Half-Bathrooms	.9
Income	.9
Size of Dwelling (Square Feet or Number of Rooms)	.8
Insulation Characteristics	.8
Conservation Measures (Storm Windows Added, etc.)	.8
Demographic Characteristics (Age of Head and Number of Household Members)	.8

Appendix C (Continued)

The resulting least squares equation is the error curve in terms of logs. Let this equation be log (RSE) = A + B x log (N). Then RSE = Antilog [A + B x log(N)]. This equation needs to be adjusted by the clustering factor. Table C1 lists the clustering factor for various ways of classifying households. Let F_Y be the clustering factor for the procedure used to classify households when Y was calculated. Set N_Y equal to the number of households the Y represented. The RSE(Y) = F_Y x Antilog [A + B x log(N_Y)].

The units of measure for Y and N, and the base of the logarithm do not matter as long as they are held constant throughout the entire procedure. If the cluster factor for a classifying scheme is not listed in Table C1 then look for a closely related classifying scheme or check to see if the RSE is one of these that is listed in the Tables.

In Table 6 the average expenditure for all fuels for households using natural gas as the main heating fuel and living in a dwelling with 8 or more rooms is estimated to be $1,190. In Table 8, the number of households over which this average applies is estimated to be 4.6 million. As an example, the RSE and standard error will be calculated for this statistic. The values for X_1 through X_{14}, N_1 through N_{14}, and RSE_1 through RSE_{14} were obtained from Tables 6, 8, and C4, respectively. The values are displayed below:

i	X_i	N_i	RSE_i
1	815	44.6	0.9
2	1026	6.6	3.8
3	1023	1.1	6.1
4	1027	5.5	4.4
5	861	15.0	1.7
6	881	10.4	1.8
7	814	4.5	3.8
8	827	11.8	2.2
9	860	4.0	3.1
10	773	2.2	3.7
11	825	5.6	3.9
12	613	11.1	2.8
13	696	2.9	3.2
14	585	8.3	3.6

Regressing log (RSE_i) on log (N_i) yields:

$$\log (RSE) = 0.83905 - 0.46213 \times \log (N_i).$$

The logarithms were calculated using base 10. The value of N_Y is 4.6 million and the cluster factor for number of rooms is F_Y= 0.8. This yields an RSE of 2.7 percent or a standard error of $32.

The RSE's calculated by the half-sample procedure on the error curve approach may differ substantially. Both are estimates of the relative error, and consequently, both are subject to random error. The error curve approach averages out some of the random error, but also introduces errors due to misspecification of the form of the error curve. The use of the error curve works best when the value of N_Y is somewhat near the middle of the values of N_i. If N_Y is smaller than all N_i's or larger than N_i's, then the error curve approach may suffer from the usual problems of extending a trend beyond the range used to estimate the trend.

Half-Sample Estimation Procedures for Sampling Errors

The complex multi-stage, multi-frame design of the survey makes it virtually impossible to construct an exact algebraic variance estimator. The method used to produce variances for this survey is balanced half-sampled replication (see References 1 and 2.) In order to apply the half-sample technique to this survey, the 131 Primary Sampling Units (PSU's) were grouped into 81 strata. Thirty-one of the strata were self-representing; that is, they consisted of large metropolitan areas that came into the sample with certainty. In these strata, segments were divided into two replication groups. Each of the remaining 50 strata consisted of two sample PSU's belonging to one of 17 intersections created by the overlap between the 10 Federal regions and the nine Census Divisions. The two replication groups in these strata consisted of one PSU each.

In order to save time and effort, a fully balanced half-sample design was not used. Instead, the half-samples were balanced only among strata in the same Census region. If a fully balanced design were used, it would require 82 half-samples. By balancing only within Census regions, a balanced design could be constructed using 32 half-samples.

The survey was constructed so that the results in each Census region can stand alone. No PSU lines cross Census region boundaries. The nonself-representing PSU's were paired within Census regions. All controlled selection was done within each Census region. The ratio estimation was also done within each Census region. Consequently, the national totals can be considered to be the sum of four independent totals for the four Census regions. Therefore, the variances of a national total is the sum of the variance for its four corresponding regional totals. This fact was used as one justification for balancing the half-sample design only within Census regions.

The 32 half-sample design is defined by a 32 x 81 matrix of +1's and -1's. The 32 rows correspond to the 32 half-samples and the 81 columns correspond to the 81 pairs of replication groups. The +1's and -1's determine which of the groups in the pairs is used in each half-sample. All column totals are 0. Therefore, each of the groups is used in exactly 16 of the half-samples. The columns for sets of pairs that fall within the same Census region are orthogonal. This is not necessarily true for columns corresponding to pairs that fall into different Census regions.

The 32 x 81 design matrix was constructed using a 32 x 32 orthogonal matrix adapted from an article by Plackett and Burman (Reference 3). The rows of this 32 x 32 matrix were randomly sorted. The sorting preserves orthogonality. For each Census region, K columns were randomly selected from the sorted matrix. Therefore, K is the number of replication groups in a Census region. After the columns for a Census region have been selected, the rows are randomly sorted again.

Without the random sortings, all of the 81 columns would be orthogonal with each other except possibly three other columns that would be identical to it. The three other columns would correspond to pairs in the three other Census regions. When two columns are identical, it means the groups corresponding to the +1's will always be in 16 half-samples together. (The groups corresponding to the -1's would follow a similar pattern.) Random sorting makes the possibility of two identical rows zero for all practical purposes.

Variance estimates for selected survey statistics were created by computing 32 half-sample estimates for each statistic. If a +1 falls in the th row and th column of the design matrix, the replication

Appendix C (Continued)

adjusted upward so that the total number of households in each Census region classified by SMSA status corresponded to the control total for that cell (see Table A1, Appendix A).

As a result of using control estimates, the total number of households in each of the 12 cells (Census region classified by SMSA status) is the same for all half-samples. The variance for these 12 totals, then, is zero. Any errors in these numbers are biases. In particular, they are affected by any undercount or overcount in the 1980 Census.

The half-sample variance estimate for the survey estimate Y' of characteristic Y is given by

$$S_{Y'}^2 = (Y'_i - Y')^2/32$$

where Y'_i is the *ith* half-sample estimate of Y, and Y' is the full sample estimate of Y. The half-sample procedure measures variability due to sampling error and random response variance.

References

1. National Center for Health Statistics: "Replication: An Approach to the Analysis of Data From Complex Surveys." *Vital and Health Statistics*. Public Health Service Publication No. 1000 - Series 2 - No. 14., Washington: U.S. Government Printing Office, April 1966.

2. National Center for Health Statistics: "Pseudoreplication: Further Evaluation and Application of the Balanced Half-Sample Technique," *Vital and Health Statistics*. Public Health Service Publication No. 1000 - Series 2 - No. 31., Washington, DC: U.S. Government Printing Office, January 1969.

3. Plackett, R.L., and Burman, J.P.: "The Design of Optimum Multifactorial Experiments." *Biometrika* 33: pp. 305-325, 1946.

Appendix C (Continued)

Table C2. Relative Standard Errors (RSE) for Estimates in Table 1 (Percent)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
TOTAL HOUSEHOLDS	-	1.5	1.5	3.8	3.5	1.9	2.0	5.5	5.4	9.0	9.1
CENSUS REGION AND DIVISION											
NORTHEAST	-	2.6	1.9	13.3	9.5	4.0	2.6	5.6	5.5	36.3	33.5
NEW ENGLAND	6.7	6.9	7.0	16.7	15.8	7.7	7.9	8.3	8.4	48.0	43.3
MIDDLE ATLANTIC	2.2	4.3	2.6	15.6	11.2	4.8	3.2	6.5	6.4	Q	47.6
NORTH CENTRAL	-	2.3	1.7	4.7	4.9	4.6	3.0	14.9	15.0	15.9	16.0
EAST NORTH CENTRAL	2.6	3.0	2.9	5.4	5.8	7.1	4.6	19.9	20.0	18.9	18.9
WEST NORTH CENTRAL	6.2	7.8	7.4	10.9	10.1	6.2	6.8	33.8	32.9	18.7	19.5
SOUTH	-	3.2	3.4	8.3	8.4	3.0	3.6	17.7	17.6	17.5	17.1
SOUTH ATLANTIC	3.5	4.9	6.5	17.1	15.5	4.7	7.6	18.2	18.0	25.3	24.6
EAST SOUTH CENTRAL	6.4	6.8	7.6	14.6	13.5	8.8	8.9	Q	Q	17.4	17.8
WEST SOUTH CENTRAL	4.4	5.0	6.7	6.4	7.9	9.3	8.5	Q	Q	41.1	39.5
WEST	-	2.5	2.5	5.1	4.7	4.2	3.1	23.5	23.4	16.8	15.7
MOUNTAIN	3.6	5.7	4.5	9.8	9.4	6.4	5.0	Q	Q	21.4	21.4
PACIFIC	1.3	4.0	4.0	7.1	6.5	4.5	4.2	19.5	19.9	33.2	28.4
AREA TYPE											
URBAN	1.7	2.2	2.0	3.4	3.2	3.0	3.1	4.6	4.7	20.5	19.5
RURAL	3.8	5.0	5.0	14.7	13.2	4.9	4.9	13.1	13.0	10.1	10.3
SMSA											
SMSA	-	1.5	.9	3.2	3.2	1.8	1.6	3.9	3.9	16.5	16.1
NON-SMSA	-	3.7	3.8	12.4	11.2	4.4	4.4	16.6	16.5	9.5	9.9
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)--LONG-TERM AVERAGE											
<2,000 CDD AND >7,000 HDD	18.8	19.1	21.1	19.7	19.3	22.1	22.3	31.7	31.7	37.7	37.8
<2,000 CDD AND 5,500 TO 7,000 HDD	7.6	7.7	7.3	9.0	8.1	11.0	9.0	10.6	10.4	19.4	19.4
<2,000 CDD AND 4,000 TO 5,499 HDD	8.6	9.1	9.0	13.5	11.1	9.0	10.0	9.3	9.2	36.7	36.0
<2,000 CDD AND <4,000 HDD	8.5	8.7	10.9	7.2	7.8	11.2	11.4	29.6	29.9	29.0	28.9
>2,000 CDD AND <4,000 HDD	7.6	7.8	8.2	13.5	12.9	8.0	9.4	38.0	40.5	13.1	16.2

SEE FOOTNOTES AT END OF TABLE.

Appendix C (Continued)

Table C2. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS: NUMBER OF HOUSEHOLDS (MILLION)	ALL FUELS: TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	ALL FUELS: TOTAL EXPENDITURES (BILLION DOLLARS)	NATURAL GAS: TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	NATURAL GAS: TOTAL EXPENDITURES (BILLION DOLLARS)	ELECTRICITY: TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	ELECTRICITY: TOTAL EXPENDITURES (BILLION DOLLARS)	FUEL OIL OR KEROSENE: TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	FUEL OIL OR KEROSENE: TOTAL EXPENDITURES (BILLION DOLLARS)	LIQUID PETROLEUM GAS: TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	LIQUID PETROLEUM GAS: TOTAL EXPENDITURES (BILLION DOLLARS)
UTILITIES PAID BY HOUSEHOLD											
ALL PAID BY HOUSEHOLD	0.9	1.8	1.9	4.0	3.7	2.2	2.4	6.3	6.3	9.3	9.4
SOME PAID, SOME INCLUDED IN RENT	7.3	7.0	6.4	10.0	9.0	9.2	8.6	8.9	8.9	49.3	49.1
ALL INCLUDED IN RENT	9.9	11.3	13.7	10.3	11.6	11.5	11.7	24.5	24.5	Q	Q
OTHER	17.1	23.1	24.2	20.8	19.9	15.9	16.3	Q	Q	37.6	36.9
TYPE OF HOUSING STRUCTURE											
SINGLE-FAMILY DETACHED	1.8	2.6	2.7	4.7	4.4	2.8	3.0	7.1	7.0	10.4	10.6
OWN	2.2	2.9	3.0	4.8	4.6	2.9	3.3	6.9	6.8	11.1	11.2
RENT	5.2	5.5	6.5	7.7	7.3	7.6	7.6	15.8	15.7	22.6	22.2
SINGLE-FAMILY ATTACHED	12.1	11.0	10.7	12.3	11.8	14.2	13.1	18.7	18.6	Q	Q
OWN	13.5	12.0	12.2	13.7	13.0	15.8	14.6	20.2	20.0	Q	Q
RENT	20.0	15.4	17.2	15.1	15.4	23.6	21.7	46.9	46.9	Q	Q
BUILDING WITH 2 TO 4 UNITS	6.4	5.9	6.0	7.1	6.7	9.6	7.8	13.0	13.2	28.6	33.0
OWN	10.0	8.0	7.3	11.5	10.4	16.0	11.7	13.4	13.4	Q	Q
RENT	7.5	7.8	7.9	8.8	8.5	11.4	9.6	16.2	16.3	23.0	22.8
BUILDING WITH 5 OR MORE UNITS	5.1	5.6	5.8	6.9	5.9	8.8	7.6	11.4	11.4	Q	Q
OWN	26.5	27.8	27.5	28.7	30.1	25.6	26.1	42.7	41.4	-	-
RENT	5.2	6.7	6.5	8.2	6.5	8.4	6.7	13.8	13.9	Q	Q
MOBILE HOME	10.5	9.8	9.5	20.9	21.5	10.7	10.1	21.5	21.3	20.0	19.5
OWN	12.1	11.1	10.6	22.7	24.0	12.7	11.3	19.0	19.2	20.3	19.9
RENT	16.6	17.5	18.7	28.4	27.8	20.6	20.9	46.6	46.5	29.6	28.5
NUMBER OF ROOMS											
1	15.7	17.0	12.4	23.7	18.1	23.9	18.7	23.1	23.2	Q	Q
2	10.7	11.2	10.2	16.9	15.4	10.6	9.4	26.1	25.9	37.3	35.9
3	6.0	6.7	6.5	10.8	9.2	7.3	6.8	14.5	14.5	22.2	23.6
4	3.6	4.6	4.2	6.3	5.9	4.7	4.6	9.0	9.2	19.7	19.3
5	2.8	4.1	3.2	7.1	7.0	3.5	3.7	9.1	9.2	13.4	13.1
6	3.7	4.3	4.3	6.2	6.2	4.8	4.9	8.3	8.3	15.3	15.4
7	5.5	5.9	6.1	8.1	8.2	6.3	6.5	10.3	10.2	21.6	21.0
8 OR MORE	5.2	6.5	6.3	8.5	8.4	6.0	6.0	13.9	13.7	25.9	25.9

SEE FOOTNOTES AT END OF TABLE.

Appendix C (Continued)

Table C2. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSE-HOLDS (MIL-LION)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	TOTAL AMOUNT CON-SUMED (QUAD-RILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED											
ALL	2.4	3.3	3.1	4.7	4.1	3.5	3.7	10.3	10.3	16.7	16.3
SOME	3.6	3.7	4.2	4.6	4.6	5.3	5.0	6.7	6.6	15.3	15.3
NONE	2.9	3.4	3.4	6.7	6.3	4.3	3.6	8.7	8.7	12.9	13.1
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)											
LESS THAN 600	5.7	7.6	7.2	9.9	9.0	7.5	5.7	20.4	20.5	19.7	18.3
600 TO 999	3.1	3.9	3.7	5.5	5.6	3.7	3.3	8.0	8.1	13.9	13.7
1,000 TO 1,599	2.8	3.4	3.6	5.5	5.2	4.0	4.4	9.3	9.2	13.5	13.4
1,600 TO 1,999	4.3	3.8	4.5	5.6	5.5	5.9	5.8	11.8	11.8	20.6	21.1
2,000 TO 2,399	4.9	5.0	3.5	6.6	6.3	6.7	6.4	14.0	13.8	24.0	23.7
2,400 TO 2,999	5.8	7.4	6.4	10.7	10.6	5.4	5.7	13.7	13.8	23.6	23.5
3,000 OR MORE	7.1	8.2	7.7	10.7	10.8	6.8	6.7	13.5	13.6	32.2	31.7
YEAR HOUSE BUILT											
1939 OR EARLIER	3.7	3.8	3.8	6.3	6.1	3.7	3.8	8.3	8.2	15.0	15.5
1940 TO 1949	5.4	6.5	6.2	8.9	8.3	7.2	6.5	13.9	13.8	29.5	27.9
1950 TO 1959	6.0	6.4	6.3	7.8	7.6	7.5	7.2	10.7	10.7	18.0	18.0
1960 TO 1964	5.4	6.1	6.2	8.7	8.5	7.4	7.3	21.8	21.9	40.1	38.8
1965 TO 1969	5.8	6.2	5.5	9.3	9.5	6.0	5.7	17.0	16.9	20.3	19.5
1970 TO 1974	6.2	7.1	6.8	9.8	10.2	7.2	6.9	22.6	22.6	18.9	18.9
1975 OR LATER	7.5	6.7	7.4	11.9	12.1	8.1	8.1	26.0	25.9	25.7	24.8
OWN/RENT											
OWN	1.6	2.2	2.3	4.3	4.0	2.5	2.7	6.1	5.9	8.6	8.7
RENT	3.2	3.4	3.5	4.9	4.6	4.2	3.6	10.0	10.0	18.3	18.2

SEE FOOTNOTES AT END OF TABLE.

Table C2. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
1979 FAMILY INCOME											
LESS THAN $5,000	4.7	4.7	5.1	6.3	6.4	5.7	4.8	14.6	14.6	20.9	20.3
$5,000 TO $9,999	4.2	4.1	4.0	6.0	5.6	4.9	4.9	9.4	9.3	15.1	14.2
$10,000 TO $14,999	3.8	4.2	4.3	8.0	7.3	5.8	5.3	10.6	10.4	17.2	17.7
$15,000 TO $19,999	3.3	4.8	4.5	7.2	6.7	5.1	4.6	12.1	12.1	23.3	22.3
$20,000 TO $24,999	5.1	6.6	5.8	8.6	8.3	6.1	5.6	11.8	11.8	20.8	20.3
$25,000 TO $34,999	4.1	4.8	4.8	6.9	7.6	4.9	4.5	11.7	11.7	15.5	15.0
$35,000 OR MORE	5.9	7.1	7.5	8.9	9.0	7.0	8.0	14.0	14.0	18.3	17.5
TOTAL POOR (100 PERCENT LEVEL)	4.4	5.2	4.7	7.8	7.6	5.4	4.8	14.3	14.1	16.8	16.2
TOTAL POOR (125 PERCENT LEVEL)	4.0	4.3	4.2	6.6	6.6	5.5	4.6	10.5	10.4	14.3	14.0
ORIGIN											
WHITE	1.1	2.2	1.8	4.7	4.2	2.0	2.0	5.8	5.7	9.4	9.6
BLACK	9.0	8.2	8.4	9.7	9.4	9.9	9.7	12.5	12.4	34.8	34.5
OTHER	8.3	11.7	10.9	16.2	17.0	13.8	13.5	43.7	43.6	29.7	23.0
AGE OF HOUSEHOLD HEAD											
UNDER 25 YEARS	5.2	6.5	6.1	8.7	8.1	6.1	6.2	22.8	22.8	28.1	27.5
25 TO 34 YEARS	2.8	3.1	3.2	5.2	4.9	3.5	3.6	9.6	9.7	15.6	15.4
35 TO 44 YEARS	4.2	5.0	4.3	7.8	8.1	4.5	4.3	8.8	8.7	19.6	18.3
45 TO 59 YEARS	2.8	4.0	3.8	6.4	6.4	3.8	3.9	8.5	8.4	17.1	16.7
60 YEARS AND OVER	3.5	3.3	3.7	6.0	5.5	4.7	4.5	9.7	9.7	15.1	14.9
HOUSEHOLD MEMBERS											
1	2.5	3.5	3.9	5.6	4.8	4.6	3.9	12.0	12.1	17.6	18.8
2	3.1	3.0	3.0	5.0	4.4	4.0	3.9	5.7	5.7	15.8	15.5
3	4.5	5.6	5.9	6.5	6.4	6.5	6.4	10.2	10.2	16.7	16.2
4	3.8	4.5	4.7	7.1	6.9	4.8	5.2	12.5	12.5	15.9	16.3
5	3.7	4.5	4.6	5.9	7.7	5.5	5.0	11.5	11.5	19.8	19.3
6 OR MORE	7.8	10.2	9.9	13.1	13.1	8.7	9.0	25.1	25.2	20.5	18.6

SEE FOOTNOTES AT END OF TABLE.

Table C2.
(Continued)

HOUSEHOLD CHARACTERISTICS	ALL FUELS			NATURAL GAS		ELECTRICITY		FUEL OIL OR KEROSENE		LIQUID PETROLEUM GAS	
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)
FUEL COMBINATIONS											
USE NATURAL GAS FOR MAIN HEATING	3.4	3.9	3.5	4.0	3.7	4.1	3.6	32.6	32.5	Q	Q
WATER HEAT AND COOK WITH NATURAL GAS	4.3	5.0	4.5	5.1	4.8	5.0	4.4	Q	Q	-	-
WATER HEAT WITH NATURAL GAS AND COOK WITH ELECTRICITY	6.1	6.5	6.1	6.7	6.3	6.2	6.2	C	Q	Q	Q
WATER HEAT WITH ELECTRICITY AND COOK WITH NATURAL GAS	16.4	16.2	16.2	16.3	16.1	19.2	17.7	-	-	-	-
WATER HEAT AND COOK WITH ELECTRICITY	12.4	12.2	13.6	11.1	11.6	15.4	15.5	Q	Q	-	-
OTHER	27.0	24.4	26.5	25.0	23.9	39.3	33.9	Q	Q	Q	C
USE ELECTRICITY FOR MAIN HEATING	7.3	7.1	7.4	17.6	17.0	6.8	7.2	43.3	43.3	40.2	37.6
WATER HEAT AND COOK WITH ELECTRICITY	7.1	6.5	6.6	32.6	34.4	6.5	6.6	46.0	46.3	32.2	31.1
OTHER	15.9	19.0	19.9	18.7	18.2	19.3	19.6	Q	Q	43.9	41.3
USE FUEL OIL FOR MAIN HEATING	5.8	5.7	5.9	7.8	6.5	7.8	7.8	5.7	5.6	20.4	21.2
WATER HEAT WITH FUEL OIL AND COOK WITH ELECTRICITY	12.5	12.5	12.9	C	Q	14.7	15.0	12.2	12.2	Q	Q
WATER HEAT WITH FUEL OIL AND COOK WITH NATURAL GAS	9.8	9.1	8.6	8.8	7.9	12.0	11.4	9.8	9.9	-	-
WATER HEAT AND COOK WITH ELECTRICITY	12.7	11.9	11.8	C	Q	12.9	12.8	11.6	11.4	48.3	45.1
WATER HEAT AND COOK WITH NATURAL GAS	14.1	12.5	12.4	12.3	11.9	13.0	12.8	13.8	13.6	-	-
OTHER	17.2	16.5	17.6	29.7	26.5	19.3	20.7	16.4	16.4	22.0	23.3
USE WOOD FOR MAIN HEATING	13.6	15.4	15.2	24.3	23.9	15.9	15.4	21.3	21.5	23.6	23.2
USE LPG FOR MAIN HEATING	9.5	9.4	9.7	-	-	10.1	10.5	Q	Q	10.0	10.1
USE COAL FOR MAIN HEATING	26.3	27.2	25.3	Q	Q	31.3	27.2	34.2	34.0	Q	Q
OTHER	22.1	26.6	25.5	Q	Q	22.4	23.7	28.2	27.9	48.7	45.0
NO HEATING	19.5	15.8	14.8	47.8	44.9	23.1	16.9	Q	Q	16.9	12.5

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS.
SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table C3. Relative Standard Errors (RSE) for Estimates in Table 5 (Percent)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING:				
		NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL		FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
			WITH AIR CONDITIONING	WITHOUT AIR CONDITIONING		
TOTAL HOUSEHOLDS	1.5	1.1	3.2	4.1	1.9	3.6
CENSUS REGION AND DIVISION						
NORTHEAST	2.6	2.2	12.1	8.8	1.7	24.8
NEW ENGLAND	2.4	6.3	13.4	17.1	2.6	Q
MIDDLE ATLANTIC	3.2	2.2	16.6	9.4	2.1	35.8
NORTH CENTRAL	2.3	1.5	10.8	8.5	3.8	4.3
EAST NORTH CENTRAL	2.7	1.5	14.3	8.9	4.1	5.7
WEST NORTH CENTRAL	5.3	4.0	10.4	46.2	9.0	7.1
SOUTH	3.2	2.9	3.5	9.4	5.0	4.1
SOUTH ATLANTIC	5.7	5.4	3.8	13.8	5.1	7.2
EAST SOUTH CENTRAL	5.7	5.6	3.7	16.2	22.4	6.3
WEST SOUTH CENTRAL	3.5	4.0	11.0	25.2	Q	5.0
WEST	2.5	1.9	12.0	6.3	4.6	7.0
MOUNTAIN	4.2	3.3	7.5	17.6	Q	8.8
PACIFIC	3.2	2.5	10.9	6.7	6.1	11.8
AREA TYPE						
URBAN	1.3	1.2	4.2	7.2	1.9	15.1
RURAL	3.0	2.5	4.6	5.3	3.6	4.2
SMSA						
SMSA	1.5	1.3	3.6	5.7	1.9	7.4
NON-SMSA	3.6	3.5	4.8	4.8	4.1	4.6
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE						
<2,000 CDD AND >7,000 HDD	4.8	4.5	22.2	13.8	4.6	9.6
<2,000 CDD AND 5,500 TO 7,000 HDD	1.7	1.3	14.6	7.5	2.5	6.2
<2,000 CDD AND 4,000 TO 5,499 HDD	3.5	2.5	5.0	4.6	3.5	7.8
<2,000 CDD AND <4,000 HDD	2.6	2.5	5.4	12.5	5.8	7.1
>2,000 CDD AND <4,000 HDD	5.7	3.7	5.0	21.8	9.1	7.2

SEE FOOTNOTES AT END OF TABLE.

Table C3. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
UTILITIES PAID BY HOUSEHOLD						
ALL PAID BY HOUSEHOLD..........	1.6	1.2	3.4	3.9	1.9	3.7
SOME PAID, SOME INCLUDED IN RENT...........................	3.3	3.2	12.0	27.5	6.0	41.4
ALL INCLUDED IN RENT...........	5.4	5.1	9.0	14.1	1.9	18.3
OTHER..........................	10.9	8.5	23.6	37.4	20.6	19.3
TYPE OF HOUSING STRUCTURE						
SINGLE-FAMILY DETACHED.........	1.6	1.2	2.9	3.9	2.1	4.9
OWN..........................	1.7	1.4	2.6	4.0	1.8	4.8
RENT.........................	3.1	2.5	13.2	9.5	5.4	10.9
SINGLE-FAMILY ATTACHED.........	5.8	4.8	21.0	9.0	5.1	48.7
OWN..........................	5.0	6.0	10.9	33.4	5.4	Q
RENT.........................	12.2	10.4	49.4	10.2	43.1	Q
BUILDING WITH 2 TO 4 UNITS....	2.6	2.3	8.8	8.2	4.6	10.7
OWN..........................	7.2	4.6	Q	11.5	6.7	Q
RENT.........................	2.4	2.2	8.2	9.4	5.8	14.1
BUILDING WITH 5 OR MORE UNITS...........................	3.6	3.2	4.3	9.8	3.5	Q
OWN..........................	12.3	11.0	11.3	-	Q	-
RENT.........................	4.0	3.8	5.1	9.8	3.1	Q
MOBILE HOME....................	4.3	4.0	9.7	12.4	8.5	4.6
OWN..........................	4.4	4.9	10.2	8.4	4.1	6.1
RENT.........................	7.3	7.2	31.0	33.9	23.5	8.9
NUMBER OF ROOMS						
1............................	17.5	13.9	Q	Q	18.9	Q
2............................	5.5	5.8	11.8	7.0	7.1	24.5
3............................	4.1	4.8	5.3	9.5	2.8	11.2
4............................	2.7	2.4	5.8	5.3	3.3	8.7
5............................	2.2	2.4	4.3	5.3	3.4	5.7
6............................	1.7	1.1	3.8	5.8	2.5	8.7
7............................	2.8	2.5	7.6	6.8	3.1	14.4
8 OR MORE....................	2.8	2.7	5.2	7.9	3.4	10.1

SEE FOOTNOTES AT END OF TABLE.

Table C3. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED						
ALL	2.1	2.2	2.8	-	3.3	5.4
SOME	2.0	1.7	11.6	-	2.2	8.1
NONE	2.0	2.5	-	4.1	2.0	4.7
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)						
LESS THAN 600	4.5	4.7	7.9	9.3	6.9	9.9
600 TO 999	2.0	1.9	4.1	5.5	2.5	3.3
1,000 TO 1,599	2.0	1.9	4.2	4.9	2.4	4.6
1,600 TO 1,999	2.3	2.3	5.1	10.9	3.4	10.1
2,000 TO 2,399	2.9	3.1	6.4	7.3	4.3	17.0
2,400 TO 2,999	2.7	2.4	9.0	13.5	4.8	9.2
3,000 OR MORE	3.9	4.6	6.4	10.4	5.3	9.9
YEAR HOUSE BUILT						
1939 OR EARLIER	1.9	2.1	9.5	12.3	2.5	7.4
1940 TO 1949	3.1	3.4	15.2	10.2	4.5	12.7
1950 TO 1959	1.8	2.2	10.6	9.3	2.6	13.5
1960 TO 1964	2.7	3.0	11.4	12.8	3.5	11.0
1965 TO 1969	3.5	3.0	6.1	7.8	10.5	9.2
1970 TO 1974	3.5	3.9	4.7	7.2	8.3	6.7
1975 OR LATER	3.8	3.9	4.9	6.9	8.0	7.3
OWN/RENT						
OWN	1.7	1.4	3.1	3.5	1.9	3.7
RENT	1.8	1.8	5.6	7.6	2.8	5.9

SEE FOOTNOTES AT END OF TABLE.

Table C3. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
1979 FAMILY INCOME						
LESS THAN $5,000	3.1	3.3	7.9	7.3	5.8	5.3
$5,000 TO $9,999	2.6	2.1	5.0	10.4	4.1	6.6
$10,000 TO $14,999	2.1	2.7	6.7	8.1	2.9	5.4
$15,000 TO $19,999	2.5	2.5	6.2	9.8	3.8	8.8
$20,000 TO $24,999	2.5	2.9	5.3	7.1	6.4	11.3
$25,000 TO $34,999	2.4	2.0	7.6	10.9	3.5	9.3
$35,000 OR MORE	3.0	3.5	6.6	7.8	3.1	8.1
TOTAL POOR (100 PERCENT LEVEL)	3.8	3.7	10.4	6.5	5.4	3.8
TOTAL POOR (125 PERCENT LEVEL)	3.1	3.3	7.6	6.0	5.2	2.9
ORIGIN						
WHITE	1.7	1.1	3.0	3.9	2.3	4.4
BLACK	3.0	3.1	8.6	15.8	3.3	10.1
OTHER	6.7	5.2	18.6	14.5	17.1	Q
AGE OF HOUSEHOLD HEAD						
UNDER 25 YEARS	3.0	2.5	6.6	9.0	7.0	7.6
25 TO 34 YEARS	2.0	1.8	6.2	8.9	3.3	5.8
35 TO 44 YEARS	2.6	2.4	4.7	8.4	3.9	8.6
45 TO 59 YEARS	2.0	1.8	4.9	5.2	3.3	8.1
60 YEARS AND OVER	2.2	2.3	5.8	6.0	2.2	6.3
HOUSEHOLD MEMBERS						
1	2.6	2.4	5.6	6.8	5.3	5.9
2	1.7	2.0	4.2	6.1	2.7	6.7
3	2.2	2.0	5.7	5.5	3.5	8.2
4	2.2	2.0	4.5	4.5	3.2	6.8
5	2.7	2.1	6.2	8.5	5.6	13.0
6 OR MORE	3.6	2.9	11.5	6.8	4.8	12.4

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table C4. Relative Standard Errors (RSE) for Estimates in Table 6 (Percent)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
TOTAL HOUSEHOLDS	1.5	0.9	3.0	7.6	2.3	3.9
CENSUS REGION AND DIVISION						
NORTHEAST	1.9	3.8	14.4	8.5	1.5	24.6
NEW ENGLAND	2.3	6.1	13.0	15.5	2.3	Q
MIDDLE ATLANTIC	2.3	4.4	19.9	9.7	1.7	37.6
NORTH CENTRAL	1.7	1.7	11.5	6.5	8.5	3.9
EAST NORTH CENTRAL	2.1	1.8	15.1	6.0	4.2	5.1
WEST NORTH CENTRAL	3.5	3.8	9.9	39.5	10.6	6.1
SOUTH	3.4	2.2	3.5	15.9	7.5	4.9
SOUTH ATLANTIC	5.5	3.1	4.5	20.4	7.6	8.3
EAST SOUTH CENTRAL	3.3	3.7	4.9	17.6	20.2	6.1
WEST SOUTH CENTRAL	4.1	3.9	9.9	16.4	Q	4.7
WEST	2.5	2.8	8.0	4.3	6.8	8.7
MOUNTAIN	2.7	3.2	7.9	10.2	Q	6.5
PACIFIC	3.5	3.6	14.4	4.1	8.6	28.3
AREA TYPE						
URBAN	.9	1.0	4.9	8.0	1.5	17.4
RURAL	3.6	2.2	4.2	12.7	5.1	4.2
SMSA						
SMSA	.9	1.2	3.0	6.3	1.6	6.0
NON-SMSA	3.8	2.6	5.9	13.0	6.7	5.0
ANNUAL HEATING DEGREE-DAYS (HDD) AND COOLING DEGREE-DAYS (CDD)—LONG-TERM AVERAGE						
<2,000 CDD AND >7,000 HDD	3.4	4.2	26.9	14.1	5.0	9.5
<2,000 CDD AND 5,500 TO 7,000 HDD	2.3	1.8	14.7	8.6	2.5	5.9
<2,000 CDD AND 4,000 TO 5,499 HDD	4.0	2.5	8.9	10.9	4.2	6.5
<2,000 CDD AND <4,000 HDD	3.4	2.9	6.0	14.5	5.7	8.5
>2,000 CDD AND <4,000 HDD	3.4	4.0	4.0	22.6	5.8	6.6

SEE FOOTNOTES AT END OF TABLE.

Table C4. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
UTILITIES PAID BY HOUSEHOLD						
ALL PAID BY HOUSEHOLD..........	1.6	1.0	2.9	7.6	2.6	4.0
SOME PAID, SOME INCLUDED IN RENT..........................	2.8	2.2	6.6	24.9	3.7	39.8
ALL INCLUDED IN RENT...........	6.7	5.4	6.4	11.6	2.4	13.5
OTHER..........................	11.9	6.9	14.1	33.2	15.7	16.3
TYPE OF HOUSING STRUCTURE						
SINGLE-FAMILY DETACHED........	1.6	1.2	2.6	8.8	2.7	4.6
OWN..........................	1.6	1.3	2.4	9.5	2.6	4.5
RENT.........................	3.1	2.1	11.7	13.5	4.3	10.1
SINGLE-FAMILY ATTACHED........	6.4	5.5	25.6	28.7	6.6	Q
OWN..........................	6.6	6.7	16.3	45.0	7.3	Q
RENT.........................	9.2	8.3	Q	30.0	35.0	Q
BUILDING WITH 2 TO 4 UNITS....	3.1	1.9	4.7	11.4	3.7	9.4
OWN..........................	6.2	5.3	44.9	8.0	6.2	Q
RENT.........................	3.0	1.8	5.2	12.2	5.0	11.7
BUILDING WITH 5 OR MORE UNITS.........................	3.0	3.3	4.5	11.6	2.6	Q
OWN..........................	9.5	11.1	12.7	-	Q	-
RENT.........................	3.5	3.2	4.3	11.6	2.6	Q
MOBILE HOME...................	4.4	4.7	8.1	10.1	9.8	4.6
OWN..........................	4.4	5.8	8.8	10.4	8.9	5.7
RENT.........................	8.0	9.6	34.9	17.3	24.1	7.4
NUMBER OF ROOMS						
1............................	11.8	10.3	40.3	Q	11.6	Q
2............................	6.0	6.3	11.9	13.4	7.1	20.8
3............................	4.0	4.0	5.7	11.2	2.8	10.8
4............................	2.0	1.8	4.0	7.7	3.0	6.3
5............................	1.8	1.8	3.8	10.2	3.3	4.8
6............................	1.9	1.0	3.7	16.6	2.6	8.0
7............................	1.9	2.6	5.4	10.0	3.1	11.8
8 OR MORE....................	2.3	2.5	4.7	6.7	3.8	8.0

SEE FOOTNOTES AT END OF TABLE.

Table C4. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
NUMBER OF ROOMS THAT CAN BE AIR CONDITIONED						
ALL	1.6	1.8	3.0	-	4.0	4.8
SOME	2.0	1.6	8.6	-	2.3	6.9
NONE	2.2	2.3	-	7.6	2.3	5.0
MEASURED HEATED SPACE OF RESIDENCE (IN SQUARE FEET)						
LESS THAN 600	4.4	4.9	6.0	9.4	5.3	10.7
600 TO 999	2.1	1.7	3.8	7.8	2.2	3.1
1,000 TO 1,599	2.3	1.7	3.7	12.3	2.9	4.6
1,600 TO 1,999	1.6	1.8	4.0	18.3	4.2	7.5
2,000 TO 2,399	2.6	2.3	5.7	8.3	4.3	16.8
2,400 TO 2,999	2.4	2.5	9.6	12.6	5.1	6.2
3,000 OR MORE	3.2	4.1	9.9	17.1	5.2	7.1
YEAR HOUSE BUILT						
1939 OR EARLIER	1.7	2.1	5.6	14.0	2.0	7.5
1940 TO 1949	2.9	3.5	15.8	19.7	4.5	13.5
1950 TO 1959	2.0	1.6	8.6	11.2	3.0	10.7
1960 TO 1964	2.8	2.7	9.9	19.2	4.3	9.6
1965 TO 1969	3.7	2.9	6.3	12.1	10.8	9.2
1970 TO 1974	3.3	3.4	5.7	15.7	6.9	5.1
1975 OR LATER	3.6	4.3	4.7	10.8	11.9	6.7
OWN/RENT						
OWN	1.6	1.2	2.7	9.2	2.5	3.9
RENT	1.8	1.4	4.2	9.8	2.3	5.6

SEE FOOTNOTES AT END OF TABLE.

Appendix C (Continued)

Table C4. (Continued)

HOUSEHOLD CHARACTERISTICS	ALL HOUSEHOLDS	HOUSEHOLDS USING: NATURAL GAS AS MAIN HEATING FUEL	ELECTRICITY AS MAIN HEATING FUEL: WITH AIR CONDITIONING	ELECTRICITY AS MAIN HEATING FUEL: WITHOUT AIR CONDITIONING	FUEL OIL OR KEROSENE AS MAIN HEATING FUEL	LIQUID PETROLEUM GAS AS MAIN HEATING FUEL
1979 FAMILY INCOME						
LESS THAN $5,000	3.1	3.0	6.4	10.8	6.2	5.0
$5,000 TO $9,999	2.1	1.4	4.3	14.5	3.3	6.0
$10,000 TO $14,999	2.3	2.0	5.9	12.2	3.0	4.9
$15,000 TO $19,999	2.3	2.1	5.6	8.2	3.8	9.7
$20,000 TO $24,999	2.0	2.2	4.8	12.3	4.9	8.0
$25,000 TO $34,999	2.4	1.9	5.3	14.0	3.6	7.7
$35,000 OR MORE	2.9	3.0	6.0	20.4	4.1	7.6
TOTAL POOR (100 PERCENT LEVEL)	3.3	3.1	11.2	13.4	6.2	3.7
TOTAL POOR (125 PERCENT LEVEL)	2.7	2.7	7.8	11.4	5.1	3.3
ORIGIN						
WHITE	1.6	1.0	3.0	7.1	2.7	4.5
BLACK	2.3	3.0	10.7	25.4	3.3	9.6
OTHER	6.8	7.8	17.5	15.6	15.4	Q
AGE OF HOUSEHOLD HEAD						
UNDER 25 YEARS	2.5	2.3	5.5	10.0	6.8	6.8
25 TO 34 YEARS	2.2	1.6	4.1	11.7	4.1	4.6
35 TO 44 YEARS	1.9	1.9	5.5	11.0	4.2	7.8
45 TO 59 YEARS	2.2	1.6	5.1	10.1	3.2	6.8
60 YEARS AND OVER	2.0	1.8	6.4	11.7	2.3	5.8
HOUSEHOLD MEMBERS						
1	2.8	1.9	5.9	8.3	4.4	6.3
2	1.5	1.5	3.1	9.3	2.7	6.8
3	2.3	2.1	5.0	10.6	3.1	7.6
4	2.1	2.2	4.7	9.6	3.5	7.1
5	2.4	2.3	6.3	9.7	5.8	9.3
6 OR MORE	3.6	2.3	8.0	16.0	5.3	9.4

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Appendix C (Continued)

Table C5. Relative Standard Errors (RSE) for Estimates in Table 7 (Percent)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS................	2.7	3.8	3.8	3.5	1.2	1.8	1.8	1.5
CENSUS REGION AND DIVISION								
NORTHEAST......................	8.3	13.3	13.3	9.5	4.8	6.4	6.4	3.2
NEW ENGLAND..................	13.9	16.7	16.7	15.8	2.3	10.0	10.0	7.9
MIDDLE ATLANTIC..............	10.1	15.6	15.6	11.2	5.5	7.2	7.2	3.6
NORTH CENTRAL..................	3.6	4.7	4.7	4.9	1.9	2.0	2.0	2.6
EAST NORTH CENTRAL..........	4.0	5.4	5.4	5.8	1.1	2.3	2.3	2.7
WEST NORTH CENTRAL..........	10.0	10.9	10.9	10.1	6.5	4.5	4.5	5.2
SOUTH..........................	6.0	8.3	8.3	8.4	3.3	4.0	4.0	3.6
SOUTH ATLANTIC..............	11.4	17.1	17.1	15.5	2.4	8.1	8.1	6.4
EAST SOUTH CENTRAL..........	10.7	14.6	14.6	13.5	6.2	8.1	8.1	7.4
WEST SOUTH CENTRAL..........	4.7	6.4	6.4	7.9	7.3	5.1	5.1	4.7
WEST...........................	3.8	5.1	5.1	4.7	.8	2.1	2.1	2.0
MOUNTAIN.....................	8.6	9.8	9.8	9.4	1.2	2.7	2.7	2.2
PACIFIC......................	5.0	7.1	7.1	6.5	1.0	3.0	3.0	2.7
AREA TYPE								
URBAN..........................	2.3	3.4	3.4	3.2	1.1	1.8	1.8	1.7
RURAL..........................	12.7	14.7	14.7	13.2	3.8	3.3	3.3	3.4
1979 FAMILY INCOME								
LESS THAN $5,000...............	6.4	6.3	6.3	6.4	1.6	4.7	4.7	4.2
$5,000 TO $9,999...............	5.2	6.0	6.0	5.6	1.3	3.3	3.3	2.7
$10,000 TO $14,999.............	6.5	8.0	8.0	7.3	1.9	3.7	3.7	3.2
$15,000 TO $19,999.............	5.0	7.2	7.2	6.7	1.7	3.2	3.2	3.2
$20,000 TO $24,999.............	7.2	8.6	8.6	8.3	1.7	3.7	3.7	3.4
$25,000 TO $34,999.............	6:5	6.9	6.9	7.6	2.1	3.0	3.0	3.0
$35,000 OR MORE................	6.4	8.9	8.9	9.0	2.0	4.2	4.2	4.1
TOTAL POOR (100 PERCENT LEVEL)..	6.3	7.8	7.8	7.6	1.5	5.1	5.1	4.6
TOTAL POOR (125 PERCENT LEVEL)..	5.6	6.6	6.6	6.6	1.5	4.4	4.4	3.8

SEE FOOTNOTES AT END OF TABLE.

Table C5.
(Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (TRILLION CU.FT.)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
GAS PAID BY HOUSEHOLD								
YES	3.1	4.1	4.1	3.7	1.4	1.7	1.7	1.6
NO	5.6	7.3	7.3	6.3	1.4	4.6	4.6	3.8
TYPE OF HOUSING STRUCTURE								
SINGLE-FAMILY DETACHED	4.2	4.7	4.7	4.4	1.6	1.8	1.8	1.6
SINGLE-FAMILY ATTACHED	13.8	12.3	12.3	11.8	2.4	5.1	5.1	6.8
BUILDING WITH 2 TO 4 UNITS	6.7	7.1	7.1	6.7	1.4	3.0	3.0	2.5
BUILDING WITH 5 OR MORE UNITS	4.7	6.9	6.9	5.9	2.3	5.8	5.8	4.6
MOBILE HOME	19.7	20.9	20.9	21.5	5.0	7.1	7.1	7.2
OWN/RENT								
OWN	3.5	4.3	4.3	4.0	1.8	1.9	1.9	1.6
RENT	3.9	4.9	4.9	4.6	1.0	2.5	2.5	2.2
OWNERSHIP OF UTILITY								
PRIVATELY OWNED	4.0	4.8	4.8	4.3	1.2	2.0	2.0	1.8
UNKNOWN	6.0	7.8	7.8	6.7	2.6	3.5	3.5	2.9
MAIN HEATING EQUIPMENT USING NATURAL GAS								
CENTRAL WARM AIR FURNACE	4.0	4.5	4.5	4.3	1.3	1.6	1.6	1.7
STEAM OR HOT-WATER SYSTEM	5.8	6.5	6.5	6.3	1.4	3.1	3.1	3.0
FLOOR, WALL OR PIPELESS FURNACE	7.1	8.8	8.8	8.5	2.8	4.3	4.3	4.5
ROOM HEATER	11.8	12.4	12.4	12.2	2.6	4.4	4.4	3.8
NONE/OTHER	5.5	7.8	7.8	6.7	2.6	5.4	5.4	3.8

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table C6. Relative Standard Errors (RSE) for Estimates in Table 8 (Percent)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)	NOT AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS................	3.4	1.5	1.5	1.4	5.7	6.1	6.1	3.3
CENSUS REGION AND DIVISION								
NORTHEAST.......................	13.7	2.2	2.2	3.9	7.6	6.3	6.3	3.7
NEW ENGLAND..................	15.1	6.2	6.2	5.0	20.0	6.4	6.4	4.6
MIDDLE ATLANTIC.............	16.3	2.3	2.3	4.5	8.9	7.3	7.3	4.2
NORTH CENTRAL....................	4.1	1.8	1.8	2.4	27.6	20.0	20.0	16.9
EAST NORTH CENTRAL..........	4.7	1.7	1.7	2.1	31.0	23.0	23.0	19.6
WEST NORTH CENTRAL..........	10.2	4.5	4.5	5.4	30.9	18.3	18.3	12.2
SOUTH...........................	7.5	3.9	3.9	3.4	15.6	10.7	10.7	6.2
SOUTH ATLANTIC...............	15.4	7.5	7.5	5.8	20.9	11.4	11.4	6.6
EAST SOUTH CENTRAL..........	11.7	6.8	6.8	5.8	35.7	46.6	46.6	39.6
WEST SOUTH CENTRAL..........	5.9	5.2	5.2	4.7	30.9	19.6	19.6	13.3
WEST............................	4.4	1.8	1.8	1.8	14.6	18.8	18.8	16.0
MOUNTAIN.....................	9.9	3.1	3.1	2.7	37.6	34.9	34.9	23.3
PACIFIC......................	5.5	2.5	2.5	2.3	15.8	20.3	20.3	17.9
AREA TYPE								
URBAN...........................	2.8	1.5	1.5	1.5	5.7	5.9	5.9	3.3
RURAL...........................	13.1	3.3	3.3	3.5	24.6	12.0	12.0	8.5
1979 FAMILY INCOME								
LESS THAN $5,000...............	5.7	3.8	3.8	4.0	20.3	11.8	11.8	6.8
$5,000 TO $9,999...............	5.6	2.5	2.5	2.1	11.5	9.9	9.9	5.7
$10,000 TO $14,999.............	7.7	3.1	3.1	3.1	7.5	8.9	8.9	7.5
$15,000 TO $19,999.............	5.7	2.8	2.8	2.9	11.0	11.6	11.6	9.4
$20,000 TO $24,999.............	7.1	3.6	3.6	3.5	16.3	12.8	12.8	7.8
$25,000 TO $34,999.............	6.3	2.4	2.4	3.0	18.9	20.3	20.3	10.3
$35,000 OR MORE................	7.4	4.1	4.1	4.1	16.4	19.3	19.3	12.9
TOTAL POOR (100 PERCENT LEVEL)..	6.5	4.2	4.2	4.3	23.1	9.2	9.2	3.7
TOTAL POOR (125 PERCENT LEVEL)..	5.2	3.7	3.7	3.6	16.0	9.7	9.7	5.2

SEE FOOTNOTES AT END OF TABLE.

Table C5. (Continued)

HOUSEHOLD CHARACTERISTICS	NATURAL GAS USED: AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NOT AS MAIN HEATING FUEL: NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND CU.FT.)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
GAS PAID BY HOUSEHOLD								
YES	3.6	1.6	1.6	1.7	5.5	6.6	6.6	3.6
NO	6.2	3.0	3.0	2.9	11.6	9.9	9.9	6.0
TYPE OF HOUSING STRUCTURE								
SINGLE-FAMILY DETACHED	4.5	1.6	1.6	1.7	10.5	7.5	7.5	4.4
SINGLE-FAMILY ATTACHED	15.2	5.8	5.8	7.5	22.1	11.7	11.7	9.3
BUILDING WITH 2 TO 4 UNITS	7.7	2.7	2.7	2.7	13.4	10.9	10.9	8.0
BUILDING WITH 5 OR MORE UNITS	5.8	3.9	3.9	4.1	11.1	10.8	10.8	7.8
MOBILE HOME	19.7	5.8	5.8	6.3	Q	82.1	82.1	47.3
OWN/RENT								
OWN	3.8	1.6	1.6	1.6	9.6	7.1	7.1	3.5
RENT	5.1	2.2	2.2	2.0	8.0	7.4	7.4	4.3
OWNERSHIP OF UTILITY								
PRIVATELY OWNED	4.4	1.8	1.8	1.8	8.0	7.3	7.3	4.0
UNKNOWN	7.1	3.0	3.0	2.6	9.5	9.3	9.3	4.5

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table C7. Relative Standard Errors (RSE) for Estimates in Table 9 (Percent)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY							
	TOTAL AMOUNT CONSUMED (BILLION KWH)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS................	1.9	1.9	2.0	1.6	-	1.9	1.9	2.0
CENSUS REGION AND DIVISION								
NORTHEAST......................	4.0	4.0	2.6	2.5	-	4.0	4.0	2.6
NEW ENGLAND....................	7.7	7.7	7.9	1.6	6.7	5.0	5.0	4.9
MIDDLE ATLANTIC................	4.8	4.8	3.2	3.2	2.2	5.3	5.3	3.3
NORTH CENTRAL..................	4.6	4.6	3.0	2.8	-	4.6	4.5	3.0
EAST NORTH CENTRAL.............	7.1	7.1	4.6	3.7	2.6	6.6	6.6	4.2
WEST NORTH CENTRAL.............	6.2	6.2	6.8	3.9	6.2	3.0	3.0	2.8
SOUTH..........................	3.0	3.0	3.6	3.3	.1	3.0	3.0	3.6
SOUTH ATLANTIC.................	4.7	4.7	7.6	5.6	3.5	3.7	3.7	5.7
EAST SOUTH CENTRAL.............	8.8	8.8	8.9	3.8	6.4	4.5	4.5	4.0
WEST SOUTH CENTRAL.............	9.3	9.3	8.5	2.2	4.4	7.3	7.3	6.6
WEST...........................	4.2	4.2	3.1	4.0	.1	4.2	4.2	3.1
MOUNTAIN.......................	6.8	6.4	5.0	5.7	3.7	5.5	5.5	4.0
PACIFIC........................	4.5	4.5	4.2	5.1	1.3	5.1	5.1	4.1
AREA TYPE								
URBAN..........................	3.0	3.0	3.1	1.1	1.7	2.1	2.1	2.1
RURAL..........................	4.9	4.9	4.9	3.2	3.8	2.6	2.6	3.1
1979 FAMILY INCOME								
LESS THAN $5,000...............	5.7	5.7	4.8	2.8	4.7	4.1	4.1	3.1
$5,000 TO $9,999...............	4.9	4.9	4.9	2.0	4.2	2.8	2.8	2.6
$10,000 TO $14,999.............	5.8	5.8	5.3	2.3	3.8	4.1	4.1	3.3
$15,000 TO $19,999.............	5.1	5.1	4.6	3.8	3.3	2.9	2.9	2.4
$20,000 TO $24,999.............	6.1	6.1	5.6	1.7	5.1	3.3	3.3	2.5
$25,000 TO $34,999.............	4.9	4.9	4.5	1.6	4.1	3.9	3.9	3.2
$35,000 OR MORE................	7.0	7.0	8.0	2.2	5.9	3.3	3.3	3.8
TOTAL POOR (100 PERCENT LEVEL)..	5.4	5.4	4.8	2.9	4.4	4.4	4.4	4.3
TOTAL POOR (125 PERCENT LEVEL)..	5.5	5.5	4.6	2.7	4.0	4.0	4.0	3.4

SEE FOOTNOTES AT END OF TABLE.

Table C7. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY							
	TOTAL AMOUNT CONSUMED (BILLION KWH)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (CENTS PER KWH)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
ELECTRICITY PAID BY HOUSEHOLD								
YES..........................	2.1	2.1	2.1	1.6	0.5	1.9	1.9	2.0
NO...........................	9.0	9.0	7.8	3.9	6.8	6.6	6.6	4.2
TYPE OF HOUSING STRUCTURE								
SINGLE-FAMILY DETACHED........	2.8	2.8	3.0	1.7	1.8	1.9	1.9	2.0
SINGLE-FAMILY ATTACHED........	14.2	14.2	13.1	2.9	12.1	6.7	6.7	7.3
BUILDING WITH 2 TO 4 UNITS....	9.6	9.6	7.8	3.5	6.4	5.0	5.0	3.2
BUILDING WITH 5 OR MORE UNITS.........................	8.8	8.8	7.6	3.4	5.1	5.4	5.4	4.3
MOBILE HOME..................	10.7	10.7	10.1	3.7	10.5	6.1	6.1	5.3
OWN/RENT								
OWN..........................	2.5	2.5	2.7	1.7	1.6	1.8	1.8	2.0
RENT.........................	4.2	4.2	3.6	1.7	3.2	2.8	2.8	2.3
TYPE OF ELECTRIC UTILITY								
PRIVATELY OWNED...............	3.4	3.4	3.9	1.6	2.6	2.1	2.1	2.5
PUBLICLY OWNED...............	13.1	13.1	14.7	4.9	11.1	4.5	4.5	5.0
CUSTOMER OWNED...............	11.2	11.2	11.5	4.2	10.0	6.2	6.2	6.4
UNKNOWN......................	6.5	6.5	6.0	1.8	5.0	3.6	3.6	3.2
ALL-ELECTRIC HOME								
YES..........................	6.5	6.5	6.6	2.9	7.1	3.0	3.0	3.3
BURNS 1/3 CORD OF WOOD OR MORE......................	11.3	11.3	11.3	4.1	11.2	2.6	2.6	4.5
BURNS LITTLE OR NO WOOD.....	7.4	7.4	8.1	3.2	8.1	3.3	3.3	3.3
NO...........................	1.9	1.9	2.1	1.2	1.3	1.6	1.6	1.8

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS.
SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table C8. Relative Standard Errors (RSE) for Estimates in Table 10 (Percent)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	7.3	3.1	3.1	3.3	8.5	3.5	3.5	3.0	10.5	4.0	4.0	7.5
CENSUS REGION AND DIVISION												
NORTHEAST	22.9	8.2	8.2	10.4	29.0	12.2	12.2	14.5	19.6	5.2	5.2	8.1
NEW ENGLAND	15.4	11.2	11.2	11.4	25.1	15.2	15.2	14.2	16.9	10.1	10.1	12.6
MIDDLE ATLANTIC	28.0	10.5	10.5	13.1	36.1	16.6	16.6	19.9	24.1	5.7	5.7	9.6
NORTH CENTRAL	21.1	9.9	9.9	10.7	25.4	12.2	12.2	12.0	35.3	8.2	8.2	6.6
SOUTH	10.1	4.8	4.8	4.3	9.3	4.4	4.4	3.5	19.9	11.3	11.3	16.2
SOUTH ATLANTIC	18.9	6.8	6.8	6.6	17.9	5.8	5.8	4.7	29.8	15.7	15.7	28.6
EAST SOUTH CENTRAL	16.7	5.5	5.5	6.1	16.8	4.8	4.8	5.2	23.5	16.2	16.2	17.6
WEST SOUTH CENTRAL	19.4	10.2	10.2	9.7	18.8	10.5	10.5	10.0	42.8	43.0	43.0	27.7
WEST	12.6	7.0	7.0	4.3	17.9	12.2	12.2	7.6	18.6	6.6	6.6	3.9
MOUNTAIN	23.8	9.9	9.9	7.9	26.2	11.1	11.1	8.7	39.8	14.9	14.9	9.6
PACIFIC	13.9	8.7	8.7	5.1	22.2	23.3	23.3	13.1	19.5	7.1	7.1	4.0
AREA TYPE												
URBAN	10.4	3.5	3.5	4.4	12.4	4.2	4.2	4.8	11.4	6.3	6.3	8.0
RURAL	8.9	3.6	3.6	5.3	8.7	4.6	4.6	4.2	19.7	4.9	4.9	12.5
1979 FAMILY INCOME												
LESS THAN $5,000	15.3	5.6	5.6	5.2	19.7	6.4	6.4	6.4	16.7	11.8	11.8	12.9
$5,000 TO $9,999	14.7	4.8	4.8	5.0	17.3	5.6	5.6	4.6	16.3	9.4	9.4	14.3
$10,000 TO $14,999	7.6	6.4	6.4	6.2	9.0	7.3	7.3	6.1	16.2	7.6	7.6	12.2
$15,000 TO $19,999	13.0	5.1	5.1	4.7	16.2	6.7	6.7	6.0	17.5	10.5	10.5	8.7
$20,000 TO $24,999	9.6	4.6	4.6	4.6	9.7	5.9	5.9	5.1	20.6	8.2	8.2	12.7
$25,000 TO $34,999	10.9	6.9	6.9	5.6	12.9	7.8	7.8	5.6	21.9	11.4	11.4	14.5
$35,000 OR MORE	15.9	5.3	5.3	5.9	17.2	6.6	6.6	8.1	32.3	8.0	8.0	20.5
TOTAL POOR (100 PERCENT LEVEL)	14.7	6.9	6.9	8.9	18.8	10.3	10.3	11.6	15.1	6.8	6.8	13.0
TOTAL POOR (125 PERCENT LEVEL)	13.5	5.6	5.6	6.6	16.4	7.4	7.4	8.1	15.4	7.3	7.3	11.5

SEE FOOTNOTES AT END OF TABLE.

Appendix C (Continued)

Table C8. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (THOUSAND KWH)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
ELECTRICITY PAID BY HOUSEHOLD												
YES	7.7	3.4	3.4	3.4	9.1	3.7	3.7	3.1	10.7	4.0	4.0	7.7
NO	17.9	8.6	8.6	6.1	22.3	9.7	9.7	6.7	22.8	18.6	18.6	9.0
OWN/RENT												
OWN	8.5	3.2	3.2	3.7	10.0	4.2	4.2	2.9	14.1	3.3	3.3	9.1
RENT	8.3	4.2	4.2	3.5	10.2	4.6	4.6	4.1	12.3	7.6	7.6	10.1
TYPE OF ELECTRIC UTILITY												
PRIVATELY OWNED	12.0	4.4	4.4	5.7	13.8	4.8	4.8	5.8	11.8	5.3	5.3	8.7
PUBLICLY OWNED	16.7	7.8	7.8	7.4	19.6	9.5	9.5	6.2	18.9	10.3	10.3	15.3
CUSTOMER OWNED	17.6	4.1	4.1	8.7	20.7	3.9	3.9	6.6	37.1	13.3	13.3	23.4
UNKNOWN	13.1	5.8	5.8	8.1	16.1	6.7	6.7	8.6	22.7	11.5	11.5	13.6
ALL-ELECTRIC HOME												
YES	7.1	3.0	3.0	3.3	8.1	3.4	3.4	2.9	11.6	3.7	3.7	7.9
BURNS 1/3 CORD OF WOOD OR MORE	11.2	2.6	2.6	4.5	15.5	3.0	3.0	3.3	14.9	6.1	6.1	12.9
BURNS LITTLE OR NO WOOD	8.1	3.3	3.3	3.3	9.5	3.2	3.2	3.2	12.1	5.2	5.2	8.6
NO	15.9	10.2	10.2	9.1	17.9	12.0	12.0	10.6	20.7	16.6	16.6	16.6
MAIN HEATING EQUIPMENT USING ELECTRICITY												
CENTRAL WARM AIR FURNACE	9.3	3.7	3.7	4.3	10.0	4.5	4.5	5.0	23.0	6.9	6.9	8.1
BUILT-IN ELECTRIC UNITS	8.2	5.8	5.8	7.1	14.1	8.6	8.6	7.3	10.4	5.4	5.4	10.1
HEAT PUMP	15.3	5.1	5.1	4.6	15.3	5.1	5.1	4.6	-	-	-	-
OTHER	27.9	14.4	14.4	9.9	29.8	18.5	18.5	12.8	29.3	13.7	13.7	14.2

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS.
SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Appendix C (Continued)

Table C9. Relative Standard Errors (RSE) for Estimates in Table 11 (Percent)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS................	1.6	1.6	1.6	1.8	2.5	2.0	2.0	1.8	2.8	2.2	2.2	2.1
CENSUS REGION AND DIVISION												
NORTHEAST........................	2.2	3.4	3.4	2.4	5.0	3.3	3.3	3.6	5.5	6.7	6.7	3.4
NEW ENGLAND....................	7.5	4.6	4.6	4.6	13.8	11.1	11.1	10.3	10.0	4.2	4.2	4.9
MIDDLE ATLANTIC................	3.4	4.2	4.2	2.9	7.1	3.5	3.5	3.9	5.1	8.8	8.8	4.0
NORTH CENTRAL....................	2.4	2.2	2.2	2.1	5.5	3.1	3.1	3.1	8.1	3.5	3.5	3.8
EAST NORTH CENTRAL............	3.9	3.0	3.0	2.3	8.1	4.7	4.7	4.0	10.8	4.4	4.4	3.8
WEST NORTH CENTRAL............	7.1	2.5	2.5	4.1	7.8	4.0	4.0	4.7	10.7	8.0	8.0	10.8
SOUTH............................	4.4	3.3	3.3	3.7	7.0	3.1	3.1	3.2	9.3	4.7	4.7	4.5
SOUTH ATLANTIC.................	6.1	4.3	4.3	6.3	11.0	3.9	3.9	5.5	12.9	7.1	7.1	7.2
EAST SOUTH CENTRAL............	7.0	5.7	5.7	3.0	11.1	5.5	5.5	4.3	14.8	9.9	9.9	6.7
WEST SOUTH CENTRAL............	6.1	6.4	6.4	5.5	8.7	6.0	6.0	5.3	17.2	6.3	6.3	3.4
WEST.............................	2.7	3.1	3.1	3.8	10.7	3.5	3.5	4.0	5.0	4.4	4.4	4.4
MOUNTAIN.......................	6.5	4.3	4.3	4.0	7.9	6.8	6.8	7.4	9.9	3.1	3.1	4.1
PACIFIC........................	4.2	3.9	3.9	5.1	15.2	3.8	3.8	4.7	6.5	5.7	5.7	5.8
AREA TYPE												
URBAN............................	2.1	2.0	2.0	1.8	3.0	2.5	2.5	1.9	3.3	2.0	2.0	2.3
RURAL............................	4.9	2.1	2.1	3.1	7.4	2.5	2.5	3.8	7.3	2.8	2.8	2.8
1979 FAMILY INCOME												
LESS THAN $5,000...............	5.1	3.4	3.4	3.4	7.8	5.7	5.7	3.7	6.8	3.8	3.8	4.1
$5,000 TO $9,999...............	4.0	2.8	2.8	2.4	6.0	3.9	3.9	3.0	4.8	3.7	3.7	2.9
$10,000 TO $14,999.............	4.5	3.7	3.7	2.7	6.9	4.4	4.4	3.5	5.7	6.0	6.0	3.9
$15,000 TO $19,999.............	4.4	2.7	2.7	2.4	6.2	2.9	2.9	2.8	7.2	5.1	5.1	4.4
$20,000 TO $24,999.............	6.1	2.6	2.6	2.2	6.9	3.3	3.3	2.9	9.1	3.9	3.9	2.8
$25,000 TO $34,999.............	4.8	3.0	3.0	3.0	7.2	3.7	3.7	3.3	6.0	3.8	3.8	3.4
$35,000 OR MORE................	6.1	3.0	3.0	3.3	7.3	3.5	3.5	3.5	9.0	4.6	4.6	6.8
TOTAL POOR (100 PERCENT LEVEL)..	4.9	4.0	4.0	3.5	6.3	6.6	6.6	4.3	5.6	4.6	4.6	4.5
TOTAL POOR (125 PERCENT LEVEL)..	4.2	3.2	3.2	2.7	5.9	5.7	5.7	3.3	5.7	3.5	3.5	3.5

SEE FOOTNOTES AT END OF TABLE.

Table C9. (Continued)

HOUSEHOLD CHARACTERISTICS	ELECTRICITY USED: NOT AS MAIN HEATING FUEL											
					FOR AIR CONDITIONING				NOT FOR AIR CONDITIONING			
	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED PER HOUSEHOLD (THOUSAND KWH)	AVG AMOUNT CONSUMED PER HOUSEHOLD (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
ELECTRICITY PAID BY HOUSEHOLD												
YES	1.6	1.6	1.6	1.9	2.8	1.9	1.9	1.8	3.0	2.2	2.2	2.3
NO	7.6	5.6	5.6	3.2	9.6	5.7	5.7	4.2	10.4	7.5	7.5	3.9
TYPE OF HOUSING STRUCTURE												
SINGLE-FAMILY DETACHED	2.3	1.6	1.6	1.7	4.6	2.0	2.0	1.8	3.2	2.1	2.1	2.1
SINGLE-FAMILY ATTACHED	12.3	5.4	5.4	4.4	16.6	7.6	7.6	5.6	17.4	6.3	6.3	6.1
BUILDING WITH 2 TO 4 UNITS	6.1	3.2	3.2	2.1	9.2	6.2	6.2	4.3	8.1	4.5	4.5	3.4
BUILDING WITH 5 OR MORE UNITS	6.2	4.6	4.6	3.9	9.1	4.7	4.7	4.5	9.5	7.2	7.2	4.7
MOBILE HOME	10.1	6.0	6.0	6.4	11.4	6.7	6.7	5.7	12.1	9.1	9.1	11.1
OWN/RENT												
OWN	2.1	1.6	1.6	1.8	3.4	1.9	1.9	1.7	3.7	2.1	2.1	2.4
RENT	4.2	3.0	3.0	2.4	6.3	4.6	4.6	3.3	4.7	3.3	3.3	2.6
TYPE OF ELECTRIC UTILITY												
PRIVATELY OWNED	2.9	1.7	1.7	2.1	3.8	2.1	2.1	2.1	4.9	2.4	2.4	2.7
PUBLICLY OWNED	11.4	4.8	4.8	4.5	13.5	7.0	7.0	5.0	14.9	7.5	7.5	5.2
CUSTOMER OWNED	13.1	4.6	4.6	5.2	16.5	5.6	5.6	4.9	19.2	5.7	5.7	7.5
UNKNOWN	6.2	3.0	3.0	2.2	7.2	4.4	4.4	3.4	7.3	5.0	5.0	3.0

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table C10. Relative Standard Errors (RSE) for Estimates in Table 12 (Percent)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE								
						AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPEND-ITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPEND-ITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	5.6	5.5	5.5	5.4	0.2	5.1	2.2	2.2	2.2
CENSUS REGION AND DIVISION									
NORTHEAST	6.8	5.6	5.6	5.5	.2	5.8	2.2	2.1	2.2
NEW ENGLAND	9.1	8.3	8.3	8.4	.3	8.4	3.0	3.0	2.9
MIDDLE ATLANTIC	7.8	6.5	6.5	6.4	.2	6.6	2.8	2.8	2.9
NORTH CENTRAL	12.4	14.9	14.9	15.0	.7	13.9	3.9	3.9	3.9
EAST NORTH CENTRAL	17.4	19.9	19.9	20.0	.4	18.4	4.5	4.5	4.5
WEST NORTH CENTRAL	24.2	33.7	33.8	32.9	1.3	28.7	9.7	9.8	9.0
SOUTH	14.1	17.7	17.7	17.6	.5	14.1	6.5	6.5	6.2
SOUTH ATLANTIC	14.6	18.1	18.2	18.0	.5	14.5	6.6	6.6	6.3
EAST/WEST SOUTH CENTRAL	33.3	47.6	47.7	47.1	2.2	44.8	18.3	18.3	16.7
WEST	20.2	23.5	23.5	23.4	.9	22.9	5.1	5.0	5.2
AREA TYPE									
URBAN	4.3	4.6	4.6	4.7	.2	4.3	2.6	2.5	2.6
RURAL	11.4	13.1	13.1	13.0	.3	11.3	3.9	3.9	3.8
1979 FAMILY INCOME									
LESS THAN $5,000	12.4	14.6	14.6	14.6	.4	12.4	7.1	7.1	7.3
$5,000 TO $9,999	7.7	9.4	9.4	9.3	.4	6.8	5.5	5.5	5.4
$10,000 TO $14,999	9.6	10.6	10.6	10.4	.4	9.5	4.1	4.1	4.0
$15,000 TO $19,999	11.8	12.1	12.1	12.1	.2	11.6	3.8	3.9	3.9
$20,000 TO $24,999	8.0	11.8	11.8	11.8	.4	9.0	8.3	8.3	8.2
$25,000 TO $34,999	10.0	11.7	11.7	11.7	.3	10.9	4.2	4.2	4.2
$35,000 OR MORE	14.5	14.0	14.0	14.0	.4	14.0	3.4	3.4	3.5
TOTAL POOR (100 PERCENT LEVEL)	14.4	14.3	14.3	14.1	.3	14.0	6.3	6.3	6.4
TOTAL POOR (125 PERCENT LEVEL)	9.8	10.5	10.5	10.4	.4	9.4	6.2	6.3	6.4

SEE FOOTNOTES AT END OF TABLE.

Table C10.
(Continued)

HOUSEHOLD CHARACTERISTICS	FUEL OIL OR KEROSENE								
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	AS MAIN HEATING FUEL			
						NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
FUEL OIL PAID BY HOUSEHOLD									
YES	6.2	6.2	6.2	6.1	0.2	5.7	2.2	2.2	2.1
NO	9.1	9.2	9.2	9.2	-	9.7	4.8	4.7	4.8
TYPE OF HOUSING STRUCTURE									
SINGLE-FAMILY DETACHED	7.0	7.1	7.1	7.0	.3	6.9	2.4	2.4	2.4
SINGLE-FAMILY ATTACHED	15.0	18.7	18.7	18.6	.9	14.9	6.5	6.5	6.4
BUILDING WITH 2 TO 4 UNITS	10.3	13.0	13.0	13.2	.3	10.8	4.9	4.9	5.1
BUILDING WITH 5 OR MORE UNITS	11.8	11.4	11.4	11.4	.1	13.0	5.5	3.3	5.6
MOBILE HOME	16.2	21.4	21.5	21.3	.7	17.4	7.9	7.9	7.8
OWN/RENT									
OWN	6.5	6.1	6.1	5.9	.3	6.0	2.1	2.2	2.1
RENT	8.5	10.0	10.0	10.0	.1	8.2	4.0	4.0	4.0
CAPACITY OF FUEL OIL/KEROSENE TANK(S)									
249 GALLONS OR LESS	21.3	22.9	22.8	22.7	.5	22.4	10.1	10.2	9.8
250 TO 300 GALLONS	7.4	6.8	6.8	6.8	.2	6.1	2.1	2.1	2.1
301 TO 799 GALLONS	10.7	11.9	11.9	11.6	.5	10.8	5.6	5.6	5.5
800 OR MORE GALLONS	15.9	15.3	15.3	15.4	.5	15.3	8.6	8.5	8.7
NOT REPORTED	17.4	19.4	19.4	19.6	.8	25.0	11.9	12.0	12.3
TANK SIZE NOT ASKED FOR HOUSEHOLD NOT PAYING FOR FUEL OIL/KEROSENE	9.2	9.2	9.2	9.2	-	9.7	4.8	4.8	4.8
MAIN HEATING EQUIPMENT USING FUEL OIL									
STEAM OR HOT WATER SYSTEM	5.9	6.1	6.1	6.1	.2	5.9	2.2	2.1	2.2
CENTRAL WARM AIR FURNACE	11.5	11.4	11.4	11.2	.4	11.5	3.8	3.9	3.8
OTHER/NONE	10.6	12.6	12.5	12.7	.5	15.0	5.8	5.8	5.5

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table C11. Relative Standard Errors (RSE) for Estimates in Table 13 (Percent)

HOUSEHOLD CHARACTERISTICS	LIQUID PETROLEUM GAS (LPG) USED:												
						AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
TOTAL HOUSEHOLDS	9.3	9.0	9.0	9.1	1.2	9.5	3.7	3.7	3.8	14.6	6.4	6.4	4.9
CENSUS REGION AND DIVISION													
NORTHEAST	26.5	36.3	36.3	33.5	6.4	Q	25.4	25.4	27.0	28.4	10.3	10.3	7.8
NORTH CENTRAL	15.6	15.9	15.9	16.0	.8	17.5	4.7	4.7	4.5	21.1	14.1	14.1	11.9
EAST NORTH CENTRAL	16.0	18.9	18.9	18.9	.5	21.9	5.7	5.7	5.5	24.4	21.0	21.0	17.5
WEST NORTH CENTRAL	24.6	18.7	18.7	19.5	1.8	17.6	8.0	8.0	7.2	39.0	23.0	23.0	20.2
SOUTH	15.4	17.5	17.5	17.1	1.8	14.8	5.3	5.3	4.6	21.4	14.9	14.9	11.8
SOUTH ATLANTIC	21.6	25.3	25.3	24.6	2.7	22.1	7.4	7.4	6.3	25.9	17.1	17.1	13.3
EAST SOUTH CENTRAL	24.1	17.4	17.4	17.8	.9	21.3	10.6	10.6	10.4	44.6	38.6	38.6	31.0
WEST SOUTH CENTRAL	28.0	41.1	41.1	39.5	2.8	31.0	15.8	15.8	13.8	29.5	42.9	42.9	37.4
WEST	16.4	16.8	16.8	15.7	2.5	25.9	6.9	6.9	5.9	35.8	13.6	13.6	11.0
MOUNTAIN	23.4	21.4	21.4	21.8	1.7	30.8	9.0	9.0	7.4	Q	35.9	35.9	36.1
PACIFIC	24.5	33.2	33.2	28.4	9.3	Q	15.0	15.0	14.1	40.7	19.5	19.5	15.3
AREA TYPE													
URBAN	19.8	20.5	20.5	19.5	3.3	19.9	13.9	13.9	12.9	24.3	29.9	29.9	24.4
RURAL	10.4	10.1	10.1	10.3	1.2	11.5	4.2	4.2	4.2	15.0	8.1	8.1	6.1
1979 FAMILY INCOME													
LESS THAN $5,000	17.0	20.9	20.9	20.3	1.6	22.8	7.3	7.3	7.2	21.7	13.7	13.7	11.6
$5,000 TO $9,999	13.5	15.1	15.1	14.2	2.2	13.8	7.2	7.2	6.5	20.5	18.4	18.4	14.2
$10,000 TO $14,999	15.0	17.2	17.2	17.7	2.2	17.3	5.0	5.0	5.0	19.4	11.9	11.9	11.0
$15,000 TO $19,999	15.3	23.3	23.3	22.3	2.6	22.9	13.8	13.8	13.0	20.5	20.4	20.4	17.3
$20,000 TO $24,999	17.6	20.8	20.8	20.3	2.3	24.5	16.3	16.3	15.7	37.0	47.4	47.4	40.2
$25,000 TO $34,999	14.3	15.5	15.5	15.0	1.9	16.7	12.7	12.7	11.8	21.1	15.5	15.5	12.8
$35,000 OR MORE	14.3	18.3	18.3	17.5	2.3	20.1	8.2	8.2	8.3	24.6	33.0	33.0	28.1
TOTAL POOR (100 PERCENT LEVEL)	14.2	16.8	16.8	16.2	1.7	14.4	6.0	6.0	5.5	21.8	13.1	13.1	11.3
TOTAL POOR (125 PERCENT LEVEL)	14.3	14.3	14.3	14.0	1.6	12.1	4.4	4.4	4.3	22.7	10.5	10.5	8.8

SEE FOOTNOTES AT END OF TABLE.

Table C11. (Continued)

HOUSEHOLD CHARACTERISTICS	LIQUID PETROLEUM GAS (LPG) USED:												
						AS MAIN HEATING FUEL				NOT AS MAIN HEATING FUEL			
	NUMBER OF HOUSEHOLDS (MILLION)	TOTAL AMOUNT CONSUMED (BILLION GALLONS)	TOTAL AMOUNT CONSUMED (QUADRILLION BTU)	TOTAL EXPENDITURES (BILLION DOLLARS)	AVG PRICE (DOLLARS PER GALLON)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)	NUMBER OF HOUSEHOLDS (MILLION)	AVG AMOUNT CONSUMED (GALLONS)	AVG AMOUNT CONSUMED (MILLION BTU)	AVG EXPENDITURES PER HOUSEHOLD (DOLLARS)
LPG PAID BY HOUSEHOLD													
YES	9.5	9.3	9.3	9.4	1.2	9.9	3.7	3.7	3.8	14.6	7.0	7.0	5.3
NO	21.2	31.4	31.4	30.1	1.9	31.0	15.1	15.1	14.2	30.5	25.8	25.8	22.0
TYPE OF HOUSING STRUCTURE													
SINGLE-FAMILY	10.8	10.7	10.7	10.8	1.2	13.9	5.4	5.4	5.4	15.4	7.8	7.8	5.8
BUILDINGS WITH 2 OR MORE UNITS	24.3	37.1	37.1	38.6	4.7	39.0	10.5	10.5	13.3	30.7	38.0	38.0	32.1
MOBILE HOME	16.6	20.0	20.0	19.5	1.6	19.0	6.6	6.6	6.3	25.2	20.6	[illegible]	15.9
OWN/RENT													
OWN	9.4	8.6	8.6	8.7	1.2	9.2	3.8	3.8	3.9	15.1	7.9	7.9	6.2
RENT	15.8	18.3	18.3	18.2	1.6	20.5	7.2	7.2	7.4	20.9	14.4	14.4	11.9
MAIN HEATING EQUIPMENT USING LPG													
CENTRAL WARM AIR FURNACE	15.1	15.6	15.6	15.8	1.1	15.1	5.3	5.3	5.7	-	-	-	-
OTHER/NONE	11.3	11.3	11.3	11.2	1.8	12.3	5.5	5.5	5.3	14.6	6.4	6.4	4.9

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS
SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Appendix C (Continued)

Table C12. Relative Standard Errors (RSE) for Estimates in Table 14 (Percent)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
TOTAL HOUSEHOLDS	1.5	2.5	2.5	2.7	5.3	4.0	5.0	3.1	3.4	5.0
AREA TYPE										
URBAN	1.3	2.4	2.3	2.5	5.9	2.1	5.6	3.6	3.2	6.0
RURAL	3.0	6.2	5.7	4.2	10.1	7.3	7.0	3.0	6.7	6.6
SMSA										
SMSA	1.5	2.8	2.4	2.7	6.7	2.6	5.8	4.2	4.0	5.9
NON-SMSA	3.6	5.5	6.1	7.9	9.3	8.3	10.8	3.5	6.7	8.4
UTILITIES PAID BY HOUSEHOLD										
ALL PAID BY HOUSEHOLD	1.6	3.6	2.6	2.7	5.8	4.0	5.0	3.0	3.4	5.0
SOME PAID, SOME INCLUDED IN RENT	3.3	4.6	10.1	31.1	10.0	Q	-	8.9	15.1	Q
ALL INCLUDED IN RENT	5.4	7.4	6.8	Q	16.6	13.2	70.7	10.8	30.1	-
OTHER	10.9	22.9	18.7	14.2	26.8	36.3	-	13.2	19.0	Q
TYPE OF HOUSING STRUCTURE										
SINGLE-FAMILY DETACHED	1.6	4.8	2.7	2.9	7.6	4.4	5.5	2.5	2.7	5.0
OWN	1.7	4.5	2.8	2.8	7.6	4.6	5.5	3.2	2.5	5.2
RENT	3.1	8.4	4.5	8.1	10.1	9.3	14.5	6.3	8.0	12.6
SINGLE-FAMILY ATTACHED	5.8	7.3	7.1	10.2	12.6	9.1	9.1	23.1	9.0	41.7
OWN	5.0	36.0	4.9	10.2	Q	14.2	13.9	9.2	13.7	45.5
RENT	12.2	8.0	22.6	Q	11.5	14.1	27.4	47.6	14.4	Q
BUILDING WITH 2 TO 4 UNITS	2.6	2.9	4.2	9.4	10.1	13.8	11.8	5.9	22.1	Q
OWN	7.2	12.6	8.1	9.6	26.9	17.2	19.0	30.5	Q	Q
RENT	2.4	3.7	4.7	20.8	10.4	18.7	Q	5.9	11.8	-
BUILDING WITH 5 OR MORE UNITS	3.6	5.2	14.6	Q	14.5	17.2	-	6.4	11.7	Q
OWN	12.3	28.7	21.4	Q	44.6	Q	-	Q	6.5	Q
RENT	4.0	6.5	13.6	-	15.3	16.8	-	6.6	15.5	Q
MOBILE HOME	4.3	6.9	7.9	Q	5.1	13.3	Q	8.6	9.1	Q
OWN	4.4	8.0	8.3	Q	6.4	18.6	Q	9.2	9.5	Q
RENT	7.3	8.6	44.0	-	15.7	33.6	-	15.1	33.2	-

SEE FOOTNOTES AT END OF TABLE.

Table C12. (Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
YEAR HOUSE BUILT										
1939 OR EARLIER	1.9	3.0	3.5	3.1	8.8	5.5	7.7	4.6	7.1	13.5
1940 TO 1949	3.1	3.9	3.2	6.8	11.1	9.5	19.2	5.8	5.8	16.4
1950 TO 1959	1.8	7.6	4.3	4.0	9.6	5.9	5.5	5.9	3.9	8.4
1960 TO 1964	2.7	6.5	4.6	5.4	9.5	7.5	7.7	7.0	6.1	8.9
1965 TO 1969	3.5	10.4	8.5	5.4	9.4	8.4	6.2	6.0	6.8	10.5
1970 TO 1974	3.5	7.7	5.0	6.1	13.8	8.2	8.2	7.8	5.2	8.6
1975 OR LATER	3.8	9.5	10.2	7.8	9.9	7.2	8.5	7.5	5.0	9.8
OWN/RENT										
OWN	1.7	4.2	2.7	2.7	6.1	4.1	5.2	3.0	3.2	5.2
RENT	1.8	4.1	4.4	7.0	6.9	7.0	10.7	5.2	6.5	15.3
1979 FAMILY INCOME										
LESS THAN $5,000	3.1	5.5	4.1	8.0	12.5	5.7	7.8	5.9	5.8	35.4
$5,000 TO $9,999	2.6	3.8	4.6	5.6	5.3	7.4	8.5	6.6	5.1	14.9
$10,000 TO $14,999	2.1	4.9	3.7	7.2	5.3	9.0	15.8	4.0	5.8	6.4
$15,000 TO $19,999	2.5	7.3	4.4	4.9	7.4	4.9	11.8	6.9	4.6	13.3
$20,000 TO $24,999	2.5	7.1	3.4	6.2	13.3	5.7	10.0	12.4	4.8	8.1
$25,000 TO $34,999	2.4	11.3	4.8	3.8	11.9	5.7	5.5	12.6	3.7	6.6
$35,000 OR MORE	3.0	12.4	4.9	3.8	17.9	6.2	6.6	8.6	5.5	8.4
TOTAL POOR (100 PERCENT LEVEL)	3.8	4.4	4.7	6.2	12.4	7.8	7.9	5.8	6.9	27.9
TOTAL POOR (125 PERCENT LEVEL)	3.1	5.5	3.3	6.3	11.5	5.4	9.1	4.4	6.8	25.1
ORIGIN										
WHITE	1.7	2.5	2.7	2.7	5.6	4.2	5.4	3.4	3.8	4.9
BLACK	3.0	3.6	5.1	9.6	15.2	9.9	3.7	6.3	5.9	27.6
OTHER	6.7	27.4	21.3	28.2	20.2	26.7	9.7	12.8	12.8	17.9
AGE OF HOUSEHOLD HEAD										
UNDER 25 YEARS	3.0	6.0	3.9	30.3	9.5	11.8	38.3	7.7	6.1	44.0
25 TO 34 YEARS	2.0	5.0	5.1	4.4	7.4	4.8	8.0	6.3	4.8	8.4
35 TO 44 YEARS	2.6	9.4	3.1	4.5	9.5	7.1	8.2	4.1	3.0	4.8
45 TO 59 YEARS	2.0	3.6	3.6	3.5	7.9	4.7	7.8	4.3	4.6	7.6
60 YEARS AND OVER	2.2	3.9	2.3	3.1	9.9	5.7	5.5	4.2	4.6	9.5

SEE FOOTNOTES AT END OF TABLE.

Table C12. (Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
HOUSEHOLD MEMBERS										
1	2.6	5.7	5.8	5.6	9.6	7.5	7.1	5.1	4.3	5.8
2	1.7	3.7	2.9	3.5	5.2	4.9	5.7	4.9	5.1	8.7
3	2.2	3.7	3.7	3.3	8.6	5.3	9.3	3.5	4.5	8.1
4	2.2	4.2	3.5	5.7	13.5	5.7	7.3	7.9	3.2	6.0
5	2.7	16.4	5.6	6.5	25.7	9.3	7.9	10.1	4.8	9.2
6 OR MORE	3.6	9.8	8.8	6.9	21.0	16.4	8.6	10.3	7.2	34.3
FUEL COMBINATIONS										
USE NATURAL GAS FOR MAIN HEATING	1.1	2.6	1.8	3.0	5.0	3.3	5.2	2.1	2.3	5.2
USE ELECTRICITY FOR MAIN HEATING	2.9	5.3	9.7	4.1	3.9	3.3	4.2	5.3	5.6	9.5
USE FUEL OIL FOR MAIN HEATING	1.9	3.4	1.7	2.6	8.6	6.3	5.8	15.7	10.1	4.4
USE WOOD FOR MAIN HEATING	3.7	11.5	7.3	5.6	14.8	5.2	9.5	14.8	9.6	6.8
USE LPG FOR MAIN HEATING	3.6	6.3	13.3	9.6	6.9	6.8	16.7	6.4	8.1	24.9
USE COAL FOR MAIN HEATING	12.0	Q	25.0	40.4	Q	49.2	Q	-	Q	-
OTHER	7.4	16.6	26.4	42.6	44.7	Q	-	13.2	29.4	Q
NO HEATING	11.3	-	-	-	-	-	-	11.3	-	-

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Appendix C (Continued)

Table C13. Relative Standard Errors (RSE) for Estimates in Table 15 (Percent)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
TOTAL HOUSEHOLDS..................	1.5	2.6	2.0	2.1	5.5	7.0	5.5	2.8	2.9	3.4
AREA TYPE										
URBAN..........................	.9	2.6	1.8	2.4	6.9	4.3	5.4	2.7	3.5	4.9
RURAL..........................	3.6	5.1	3.8	3.7	10.1	12.1	9.3	3.2	4.2	4.1
SMSA										
SMSA...........................	.9	2.9	1.9	1.9	6.5	4.6	4.6	4.0	2.9	4.3
NON-SMSA.......................	3.8	5.4	4.2	4.7	8.8	12.3	11.8	4.3	5.3	5.6
UTILITIES PAID BY HOUSEHOLD										
ALL PAID BY HOUSEHOLD..........	1.6	2.9	2.3	2.1	4.9	7.2	5.5	2.6	3.0	3.2
SOME PAID, SOME INCLUDED IN RENT........................	2.8	4.9	8.2	30.9	10.9	Q	-	9.8	9.6	C
ALL INCLUDED IN RENT...........	6.7	9.3	10.2	Q	18.3	6.3	Q	8.1	15.3	-
OTHER..........................	11.9	27.8	19.4	18.9	32.0	21.5	-	12.5	9.2	47.8
TYPE OF HOUSING STRUCTURE										
SINGLE-FAMILY DETACHED.........	1.6	3.2	2.0	2.1	5.7	6.8	6.0	2.6	2.9	3.2
OWN..........................	1.6	2.9	2.1	2.1	6.6	6.9	5.9	3.3	3.0	3.2
RENT.........................	3.2	8.4	4.2	5.9	8.7	8.8	15.7	6.6	7.0	14.5
SINGLE-FAMILY ATTACHED.........	6.4	9.2	7.7	13.4	25.5	9.9	9.2	16.0	5.8	32.5
OWN..........................	6.6	37.2	5.4	13.7	Q	11.7	13.5	14.3	10.2	36.7
RENT.........................	9.2	10.2	19.7	Q	29.4	15.4	10.5	29.5	24.2	Q
BUILDING WITH 2 TO 4 UNITS....	3.1	3.3	6.1	8.9	9.2	18.5	11.9	3.5	7.0	Q
OWN..........................	6.2	14.3	12.5	10.8	26.2	21.9	18.3	25.8	45.0	C
RENT.........................	3.0	5.4	4.1	15.0	9.2	27.3	C	3.7	11.6	-
BUILDING WITH 5 OR MORE UNITS........................	3.0	4.6	10.1	Q	18.6	14.6	-	5.3	8.8	C
OWN..........................	9.5	28.0	17.3	Q	44.1	Q	-	Q	14.0	C
RENT.........................	3.5	6.0	10.2	-	19.0	17.3	-	5.1	10.6	Q
MOBILE HOME....................	4.4	7.3	11.7	Q	6.8	21.6	Q	8.1	9.5	Q
OWN..........................	4.4	8.1	9.9	Q	7.8	22.7	Q	8.3	9.5	C
RENT.........................	8.0	13.2	36.0	-	11.2	30.6	-	14.0	34.0	-

SEE FOOTNOTES AT END OF TABLE.

Table C13. (Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.
YEAR HOUSE BUILT										
1939 OR EARLIER	1.7	2.8	2.7	3.2	7.9	5.9	6.1	4.2	6.5	7.6
1940 TO 1949	2.9	4.8	3.5	7.0	12.6	15.0	14.3	5.8	5.5	13.8
1950 TO 1959	2.0	6.7	4.1	4.1	13.0	7.5	8.7	6.0	3.4	7.4
1960 TO 1964	2.8	9.1	5.0	5.8	9.8	7.2	9.4	8.2	4.9	7.7
1965 TO 1969	3.7	5.5	6.5	6.1	7.6	12.7	7.8	7.6	6.2	5.2
1970 TO 1974	3.3	7.9	4.1	5.7	10.1	13.8	10.3	9.2	4.5	5.8
1975 OR LATER	3.6	7.4	6.5	5.0	6.0	11.7	11.3	5.7	4.5	9.6
OWN/RENT										
OWN	1.6	4.9	2.3	2.1	5.8	6.8	5.5	3.2	2.6	3.0
RENT	1.8	4.7	3.5	5.2	8.3	8.4	9.6	4.3	6.2	18.2
1979 FAMILY INCOME										
LESS THAN $5,000	3.1	6.2	5.3	7.8	14.7	9.6	11.8	4.3	4.4	26.5
$5,000 TO $9,999	2.1	4.9	2.4	8.1	4.7	10.8	10.1	4.5	4.6	12.9
$10,000 TO $14,999	2.3	4.3	4.2	5.5	11.2	8.0	10.5	3.7	6.3	5.9
$15,000 TO $19,999	2.3	5.2	3.3	5.5	7.0	7.7	10.2	7.0	4.0	8.4
$20,000 TO $24,999	2.0	6.0	3.6	4.9	9.3	6.6	10.0	10.5	3.4	10.3
$25,000 TO $34,999	2.4	10.1	3.8	3.3	13.1	7.0	5.7	10.7	2.9	5.8
$35,000 OR MORE	2.9	7.2	5.9	2.4	15.4	13.2	7.8	10.1	6.8	5.7
TOTAL POOR (100 PERCENT LEVEL)	3.3	4.1	4.1	7.9	13.8	15.0	10.8	4.4	5.9	12.0
TOTAL POOR (125 PERCENT LEVEL)	2.6	4.4	2.8	6.0	12.4	10.5	8.4	3.7	5.1	13.0
ORIGIN										
WHITE	1.6	2.8	2.1	2.0	5.1	7.0	5.9	3.2	3.0	3.9
BLACK	2.2	4.0	6.5	8.6	19.6	9.5	6.6	5.6	3.4	7.0
OTHER	6.6	30.2	12.9	27.8	23.1	15.9	12.1	9.4	22.6	14.6
AGE OF HOUSEHOLD HEAD										
UNDER 25 YEARS	2.5	5.4	6.8	36.0	12.1	15.5	38.6	5.1	4.9	41.5
25 TO 34 YEARS	2.2	4.8	2.9	3.6	8.4	9.7	6.2	5.3	4.7	8.4
35 TO 44 YEARS	1.9	6.4	3.4	3.3	9.2	5.2	6.7	5.9	4.2	5.1
45 TO 59 YEARS	2.2	2.5	3.4	2.8	8.2	8.3	8.7	5.8	3.2	5.0
60 YEARS AND OVER	2.0	5.7	3.1	3.3	7.1	7.2	8.2	4.7	3.2	7.4

SEE FOOTNOTES AT END OF TABLE.

Table C13.
(Continued)

HOUSEHOLD CHARACTERISTICS	TOTAL	HEATING DEGREE-DAYS (HDD) APRIL 1980 THROUGH MARCH 1981								
		> 5,499 HDD			4,000 TO 5,499 HDD			< 4,000 HDD		
		< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SQ.FT.	> 1,999 SQ.FT.	< 1,000 SQ.FT.	1,000 TO 1,999 SC.FT.	> 1,999 SQ.FT.
HOUSEHOLD MEMBERS										
1	2.8	6.2	4.9	7.7	5.7	5.8	16.2	4.1	4.8	9.6
2	1.5	3.8	2.5	3.9	4.4	7.8	6.6	5.0	3.6	5.9
3	2.3	3.6	3.6	3.0	9.8	8.7	9.4	3.5	3.7	9.1
4	2.1	5.1	3.2	3.2	9.5	7.6	7.2	4.8	3.8	3.0
5	2.4	14.4	5.8	4.5	21.7	6.9	7.5	9.0	5.7	10.3
6 OR MORE	3.7	9.5	6.2	6.4	20.8	16.3	10.2	12.2	5.9	14.7
FUEL COMBINATIONS										
USE NATURAL GAS FOR MAIN HEATING	.9	2.4	2.0	3.0	5.3	4.1	4.9	2.9	2.8	4.0
USE ELECTRICITY FOR MAIN HEATING	3.3	5.7	10.8	5.1	6.5	11.6	7.3	4.1	4.5	6.1
USE FUEL OIL FOR MAIN HEATING	2.2	2.4	2.1	2.7	8.1	10.1	8.8	14.4	7.5	5.7
USE WOOD FOR MAIN HEATING	4.5	10.1	7.5	4.6	12.8	6.7	8.5	6.7	6.8	9.9
USE LPG FOR MAIN HEATING	3.9	7.6	11.6	8.6	7.3	6.8	13.8	4.7	7.6	21.8
USE COAL FOR MAIN HEATING	11.2	Q	24.6	36.3	Q	33.0	Q	-	Q	-
OTHER	8.2	15.1	26.4	42.5	45.8	Q	-	8.4	31.1	Q
NO HEATING	10.5	-	-	-	-	-	-	10.5	-	-

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS. SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Table C14. Relative Standard Errors (RSE) for Estimates in Table 16 (Percent)

HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
TOTAL HOUSEHOLDS................	1.5	1.2	1.6	0.2	1.2
CENSUS REGION AND DIVISION					
NORTHEAST......................	3.1	4.8	2.5	.2	6.4
NEW ENGLAND..................	2.2	2.3	1.6	.3	6.6
MIDDLE ATLANTIC.............	3.9	5.5	3.2	.2	9.9
NORTH CENTRAL..................	2.0	1.9	2.8	.7	.8
EAST NORTH CENTRAL..........	2.4	1.1	3.7	.5	.5
WEST NORTH CENTRAL..........	4.2	6.5	3.9	1.4	1.8
SOUTH..........................	3.3	3.3	3.3	.6	1.8
SOUTH ATLANTIC..............	5.5	2.4	5.6	.6	2.7
EAST SOUTH CENTRAL..........	5.3	6.2	3.8	3.7	.9
WEST SOUTH CENTRAL..........	4.1	7.3	2.2	-	2.8
WEST...........................	1.5	.8	4.0	.9	2.5
MOUNTAIN.....................	2.7	1.2	5.7	-	1.7
PACIFIC......................	1.8	1.0	5.1	.9	9.3
AREA TYPE					
URBAN..........................	1.2	1.1	1.1	.2	3.3
RURAL..........................	2.9	3.8	3.2	.4	1.2
1979 FAMILY INCOME					
LESS THAN $5,000...............	2.2	1.6	2.8	.5	1.6
$5,000 TO $9,999...............	1.8	1.3	2.0	.4	2.2
$10,000 TO $14,999.............	2.4	1.9	2.3	.4	2.2
$15,000 TO $19,999.............	2.3	1.7	1.8	.2	2.6
$20,000 TO $24,999.............	1.9	1.7	1.7	.5	2.3
$25,000 TO $34,999.............	2.1	2.1	1.6	.3	1.9
$35,000 OR MORE................	2.8	2.0	2.2	.4	2.3
TOTAL POOR (100 PERCENT LEVEL)..	2.5	1.5	2.9	.4	1.7
TOTAL POOR (125 PERCENT LEVEL)..	2.0	1.5	2.7	.4	1.6

SEE FOOTNOTES AT END OF TABLE.

Table C14. (Continued)

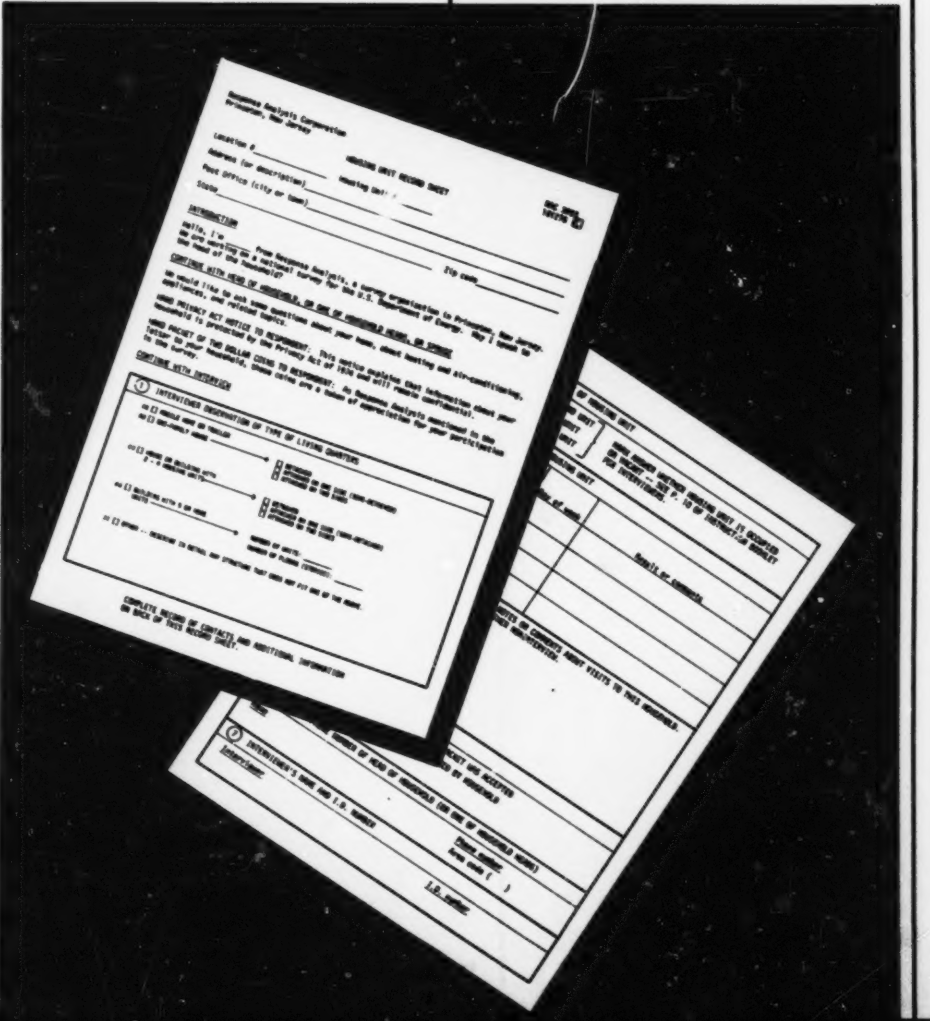
HOUSEHOLD CHARACTERISTICS	AVERAGE ENERGY PRICES				
	ALL FUELS	NATURAL GAS	ELECTRICITY	FUEL OIL OR KEROSENE	LIQUID PETROLEUM GAS
TYPE OF HOUSING STRUCTURE					
SINGLE-FAMILY DETACHED........	1.7	1.6	1.7	0.3	1.2
SINGLE-FAMILY ATTACHED........	3.0	2.4	2.9	.9	17.8
BUILDING WITH 2 TO 4 UNITS....	2.0	1.8	3.5	.3	7.0
BUILDING WITH 5 OR MORE UNITS........................	2.2	2.3	3.4	.2	-
MOBILE HOME....................	3.8	5.0	3.7	.8	1.6
OWN/RENT					
OWN..........................	1.6	1.4	1.7	.3	1.2
RENT.........................	1.6	1.0	1.7	.1	1.6

NOTE: A DASH "-" REPRESENTS ZERO, NOT AVAILABLE, OR NOT APPLICABLE. "Q" REPRESENTS DATA WITHHELD BECAUSE THE RELATIVE STANDARD ERROR IS 50 PERCENT OR GREATER. PERCENTAGES ARE CALCULATED ON UNROUNDED NUMBERS.
SEE GLOSSARY FOR DEFINITION OF TERMS USED IN THIS REPORT.

SOURCE: RESIDENTIAL AND COMMERCIAL BRANCH, ENERGY END USE DIVISION, OFFICE OF ENERGY MARKETS AND END USE, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, FORM EIA-457, THE 1980 RESIDENTIAL ENERGY CONSUMPTION SURVEY.

Appendix D

Survey Forms



Appendix D

Survey Forms

This appendix contains copies of the survey forms used in the 1980 Residential Energy Consumption Survey.

EIA-457A	Housing Unit Record Sheet (actual form was pink)
EIA-457B	Household Questionnaire (actual form had a biege cover)
EIA-457C	Rental Agent Questionnaire
EIA-457E	Electricity Utility Form (actual form was yellow)
EIA-457F	Natural Gas Utility Form (actual form was pink)
EIA-457G	Fuel Oil Supplier Form (actual form was green)
EIA-457H	Liquified Petroleum Gas Supplier Form (actual form was blue)

Response Analysis Corporation
Princeton, New Jersey
RAC 4188 071580

OMB No. 038-R0459
EIA 457A

HOUSING UNIT RECORD SHEET

Location # ____________________ Housing Unit # __________

Address (or description) ____

Post Office (city or town) ____

State ____ Zip Code _______________

INTRODUCTION

Hello, I'm _____ from Response Analysis, a survey organization in Princeton, New Jersey. We are working on a national survey for the U.S. Department of Energy. May I speak to the head of the household?

CONTINUE WITH HEAD OF HOUSEHOLD, OR ONE OF HOUSEHOLD HEADS, OR SPOUSE

We would like to ask some questions about your home, about heating and air-conditioning, household vehicles, and related topics.

HAND PRIVACY ACT NOTICE TO RESPONDENT: This notice explains that information about your household is protected by The Privacy Act of 1974 and will remain confidential.

HAND PACKET OF TWO DOLLAR COINS TO RESPONDENT: As Response Analysis mentioned in the letter to your household, these coins are a token of appreciation for your participation in the survey.

CONTINUE WITH INTERVIEW

① INTERVIEWER OBSERVATION OF TYPE OF LIVING QUARTERS

MARK BOX BELOW

- 01 ☐ MOBILE HOME OR TRAILER
- 02 ☐ ONE-FAMILY HOUSE →
- 03 ☐ HOUSE OR BUILDING WITH 2-4 HOUSING UNITS →

MARK TYPE OF STRUCTURE:

- 1 ☐ DETACHED
- 2 ☐ ATTACHED ON ONE SIDE (SEMI-DETACHED)
- 3 ☐ ATTACHED ON TWO SIDES

- 04 ☐ BUILDING WITH 5 OR MORE UNITS →

MARK ANSWERS:

NUMBER OF UNITS: ________

NUMBER OF FLOORS (STORIES): ______

- 21 ☐ OTHER -- DESCRIBE IN DETAIL ANY STRUCTURE THAT DOES NOT FIT ONE OF ABOVE.

COMPLETE RECORD OF CONTACTS AND ADDITIONAL INFORMATION ON BACK OF THIS RECORD SHEET.

Appendix D (Continued)

② TYPE OF OCCUPANCY OF HOUSING UNIT

1 [] YEAR-ROUND UNIT
2 [] SEASONAL UNIT
3 [] MIGRATORY UNIT

MARK ANSWER WHETHER HOUSING UNIT IS OCCUPIED OR VACANT -- SEE P. 10 OF INSTRUCTION BOOKLET FOR INTERVIEWERS.

③ PRESENCE OF COMMERCIAL ACTIVITY

1 [] SIGN VISIBLE FROM THE STREET INDICATING PRESENCE OF COMMERCIAL ACTIVITY, SUCH AS A DOCTOR'S OFFICE OR BEAUTY SHOP
2 [] NO SIGN VISIBLE FROM THE OUTSIDE INDICATING PRESENCE OF COMMERCIAL ACTIVITY

④ RECORD OF VISITS TO HOUSING UNIT

Visit number	Time of day (include AM or PM)	Date	Day of Week	Result or comments

⑤ USE THIS SPACE FOR ADDITIONAL NOTES OR COMMENTS ABOUT VISITS TO THIS HOUSEHOLD. DESCRIBE FULLY IF REFUSAL OR OTHER NONINTERVIEW.

⑥ GIFT TO HOUSEHOLD

MARK TO SHOW WHETHER TWO DOLLAR COIN PACKET WAS ACCEPTED
1 [] TWO DOLLAR COIN PACKET ACCEPTED BY HOUSEHOLD
0 [] NOT ACCEPTED

⑦ NAME AND PHONE NUMBER OF HEAD OF HOUSEHOLD (OR ONE OF HOUSEHOLD HEADS)

Name

Phone number
Area code (   )

⑧ INTERVIEWER'S NAME AND I.D. NUMBER

Interviewer

I.D. number

OMB No. 038-R0463 • EIA 457B

This survey is voluntary and authorized under the Federal Energy Administration Act of 1974 (Public Law 93-275). Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

Residential Energy Consumption Survey

Fall-Winter • 1980-1981

U.S. Department of Energy

Energy Information Administration

Location # ______________	111-116
Housing Unit # ______________	117-118

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Appendix D (Continued)

1

TIME INTERVIEW STARTED ________

---

1. In what year did your family move into this house (apartment)?	*01*[] BEFORE 1940 *02*[] 1940-1949 *03*[] 1950-1959 *04*[] 1960-1964 *05*[] 1965-1969 *06*[] 1970-1974 *07*[] 1975-1979 *08*[] 1980 -- ASK Q. 2 *09*[] 1981 -- ASK Q. 2	*121-122*
IF "1980" OR "1981," ASK: 2. In which month did you move in? (SPECIFY MONTH AND ENTER LAST TWO DIGITS OF YEAR.)	MONTH: ________ YEAR: 19 ______	*123-124*
3. In what year was this house (building) built? Just your estimate.	*01*[] BEFORE 1940 *02*[] 1940-1949 *03*[] 1950-1959 *04*[] 1960-1964 *05*[] 1965-1969 *06*[] 1970-1974 *07*[] 1975 *08*[] 1976 *09*[] 1977 -- ASK Q. 4 *10*[] 1978 *11*[] 1979 *12*[] 1980 *13*[] 1981	*125-126*
IF "1977," ASK: 4. Do you happen to know if the (house/building) was completed in January through June or July through December of 1977?	*1*[] JANUARY-JUNE 1977 *2*[] JULY-DECEMBER 1977 *6*[] DON'T KNOW	*127*

Appendix D (Continued)

2

5. What material is mainly used on the outside walls of your (house/building)? (IF TWO MATERIALS ARE USED ABOUT THE SAME AMOUNT, MARK TWO BOXES.)

☐ BRICK 128
☐ WOOD 129
☐ CONCRETE 130
☐ STUCCO 131
☐ STONE 132
☐ ALUMINUM SIDING 133
☐ COMPOSITION (ASBESTOS SHINGLE, ETC.) 134
☐ GLASS 135
☐ OTHER (SPECIFY): ______________
______________________ 136

6. How many floors do you use as year-round living space here in your house (apartment)?

AREAS USED AS REGULAR, YEAR-ROUND LIVING SPACE (FOR BEDROOM, KITCHEN, STUDY, ETC.) IN BASEMENT OR ATTIC SHOULD BE COUNTED.

DO NOT COUNT UNFINISHED AREAS USED FOR ROUGH WORKROOMS, UTILITY ROOM, LAUNDRY ROOM, ETC., OR AREAS USED EXCLUSIVELY FOR BUSINESS/PROFESSIONAL PURPOSES.

1☐ ONE FLOOR
2☐ 1-1/2 FLOORS
3☐ TWO FLOORS 137
4☐ 2-1/2 FLOORS
5☐ THREE OR MORE FLOORS

7. Altogether (counting all areas that are used as year-round living space), how many rooms do you have in your living quarters? Do not count bathrooms, unheated porches, foyers, or hallways.

NUMBER OF ROOMS: ☐ 138-139

8. How about the largest room (living or family room) of your house (apartment) -- what is your estimate of the length and width in feet?

INTERVIEWER: PUT RESPONDENT'S ESTIMATE IN BOXES IN RECTANGULAR OR L-SHAPED SKETCH AT RIGHT, AS APPROPRIATE. IF RESPONDENT IS UNABLE TO MAKE ESTIMATE, PUT IN YOUR OWN BEST ESTIMATE.

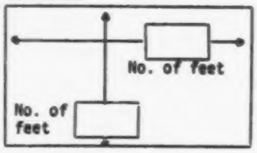
NOTE BELOW WHETHER LARGEST ROOM IS RECTANGULAR OR L-SHAPED, AND HOW ESTIMATE WAS MADE.

140
1☐ LARGEST ROOM IS RECTANGULAR: ENTER DIMENSIONS IN SKETCH #1
2☐ LARGEST ROOM IS L-SHAPED: ENTER DIMENSIONS IN SKETCH #2

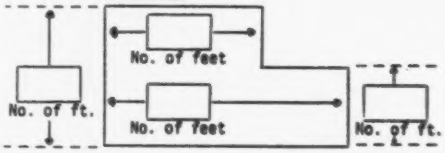
SOURCE OF ESTIMATE

141
1☐ ESTIMATE MADE BY RESPONDENT
2☐ ESTIMATE MADE BY INTERVIEWER
3☐ RESPONDENT/INTERVIEWER MEASURED

SKETCH #1



SKETCH #2



INTERVIEWER: DO NOT WRITE IN THIS SPACE.
OFFICE USE ONLY.

142-144	145-147	148-150	151-153

9. Is any part of your (house/apartment) used exclusively for business or professional purposes, such as a real estate office, doctor's office, or beauty parlor?

1[] YES

0[] NO-- SKIP TO Q. 13 *154*

IF "YES," ASK:

10. Could you describe that business or professional activity? (IF MORE THAN ONE BUSINESS/PROFESSIONAL ACTIVITY, DESCRIBE THE MAIN ACTIVITY.) *155-156*

____

____

____

11. How many rooms are used exclusively for this purpose?

NUMBER OF ROOMS USED EXCLUSIVELY FOR BUSINESS/PROFESSIONAL PURPOSES: ☐ *157-158*

12. Were these rooms included in your count of (# IN Q.7) rooms in your living quarters?

1[] YES

0[] NO *159*

13. Do you have complete plumbing facilities in this house (building); that is, hot and cold running water, a flush toilet, and a bathtub or shower?

1[] YES *160*

2[] NO, HAVE SOME BUT NOT ALL PLUMBING FACILITIES -- SKIP TO Q. 16

3[] NO PLUMBING FACILITIES IN HOUSE OR BUILDING -- SKIP TO Q. 16

IF "YES," ASK:

14. Are they for this household only or are they also used by another household?

1[] FOR THIS HOUSEHOLD ONLY *161*

2[] ALSO USED BY ANOTHER HOUSEHOLD

15. How many complete bathrooms and how many half-bathrooms do you have? (A complete bathroom is a room with a flush toilet, bathtub or shower, and a sink/washbasin with running water. A half-bath has at least a flush toilet or bathtub or shower, but does not have all the facilities for a complete bathroom.)

NUMBER OF COMPLETE BATHROOMS: ☐ *162*

[] NONE

NUMBER OF HALF BATHROOMS: ☐ *163*

[] NONE

4

HAND RESPONDENT EXHIBIT 16

16. What is the main heating equipment for your home?

01☐ HOT WATER PIPES RUNNING THROUGH A SLAB FLOOR (RADIANT HEATING)
02☐ STEAM OR HOT WATER SYSTEM WITH RADIATORS OR CONVECTORS
03☐ CENTRAL WARM-AIR FURNACE WITH DUCTS TO INDIVIDUAL ROOMS (DO NOT COUNT HEAT PUMP HERE) -- ASK Q. 17 *164-165*
04☐ HEAT PUMP
05☐ BUILT-IN ELECTRIC UNITS (PERMANENTLY INSTALLED IN WALL, CEILING, OR BASEBOARD)
06☐ FLOOR, WALL, OR PIPELESS FURNACE
07☐ ROOM HEATER BURNING GAS, OIL, KEROSENE
08☐ HEATING STOVE BURNING WOOD, COAL, COKE
09☐ FIREPLACE(S)
10☐ PORTABLE HEATER(S)
21☐ OTHER (SPECIFY): ____________________
96☐ DON'T KNOW
00☐ NO HEATING EQUIPMENT USED -- SKIP TO Q. 29

TAKE BACK EXHIBIT 16

IF "CENTRAL WARM AIR," ASK:

17. Is the warm air forced through the ducts by a fan?

1☐ YES
0☐ NO *166*
6☐ DON'T KNOW

18. Since September 1979, has your main heating equipment been serviced or cleaned?

1☐ YES
0☐ NO *167*
6☐ DON'T KNOW

IF "YES", ASK:

19. In what month and year was this work completed?

MONTH: ______ *168-169*

YEAR: 19 ______ *170-171*

IF 2 OR MORE HOUSING UNITS IN BUILDING, ASK Q. 20. OTHERWISE, SKIP TO Q. 21.

20. Is your home heated by a central system for your building (or group of buildings) or is the main heating equipment for your living quarters only?

1☐ CENTRAL SYSTEM FOR BUILDING(S) *172*
2☐ MAIN HEATING EQUIPMENT FOR THESE LIVING QUARTERS ONLY

HAND RESPONDENT EXHIBIT 21

21. What is the main fuel used for heating this house (apartment)?

01 ☐ GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
02 ☐ GAS, LPG (BOTTLED OR TANK GAS)
03 ☐ FUEL OIL
04 ☐ KEROSENE OR COAL OIL
05 ☐ ELECTRICITY
06 ☐ COAL OR COKE
07 ☐ WOOD
08 ☐ SOLAR COLLECTORS
21 ☐ OTHER (SPECIFY): ____________
____
00 ☐ NO FUEL USED

173-174

TAKE BACK EXHIBIT 21

22. Do you have a thermostat, radiator valve, or other control to adjust the temperature in your (house/apartment) during the heating season?

1 ☐ YES
0 ☐ NO

175

23. In the winter of 1979-80 was the main fuel used to heat this house (apartment) the same as it is now?

1 ☐ YES -- SKIP TO Q. 25
2 ☐ NO
9 ☐ DID NOT LIVE IN THIS HOUSE (APARTMENT) LAST WINTER -- SKIP TO Q. 25
0 ☐ NO FUEL USED -- SKIP TO Q. 29

176

IF "NO," ASK:

HAND RESPONDENT EXHIBIT 24

24. What was the main fuel used to heat this house (apartment) in the winter of 1979-80?

01 ☐ GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
02 ☐ GAS, LPG (BOTTLED OR TANK GAS)
03 ☐ FUEL OIL
04 ☐ KEROSENE OR COAL OIL
05 ☐ ELECTRICITY
06 ☐ COAL OR COKE
07 ☐ WOOD
08 ☐ SOLAR COLLECTORS
21 ☐ OTHER (SPECIFY): ____________
____
00 ☐ NO FUEL USED

177-178

TAKE BACK EXHIBIT 24

6

HAND RESPONDENT EXHIBIT 25

207-208:02

25. You have already mentioned your main heating equipment. Are any of these types of equipment used in your home in addition to your main equipment?	1☐ YES 0☐ NO -- TAKE BACK EXHIBIT 25, SKIP TO Q. 29	211

IF "YES," ASK:

26. What type(s) do you use? (IF MORE THAN ONE TYPE IS MENTIONED, MARK ONLY THE ONE USED MOST.)

- 01☐ HOT WATER PIPES RUNNING THROUGH A SLAB FLOOR (RADIANT HEATING)
- 02☐ STEAM OR HOT WATER SYSTEM WITH RADIATORS OR CONVECTORS
- 03☐ CENTRAL WARM-AIR FURNACE WITH DUCTS TO INDIVIDUAL ROOMS (DO NOT COUNT HEAT PUMP HERE) -- ASK Q. 27
- 04☐ HEAT PUMP
- 05☐ BUILT-IN ELECTRIC UNITS (PERMANENTLY INSTALLED IN WALL, CEILING, OR BASEBOARD) 212-213
- 06☐ FLOOR, WALL, OR PIPELESS FURNACE
- 07☐ ROOM HEATER BURNING GAS, OIL, KEROSENE
- 08☐ HEATING STOVE BURNING WOOD, COAL, COKE
- 09☐ FIREPLACE(S)
- 10☐ PORTABLE HEATER(S)
- 11☐ OTHER (SPECIFY): ______________________
- 96☐ DON'T KNOW

IF "CENTRAL WARM AIR," ASK:

27. Is the warm air forced through the ducts by a fan?	1☐ YES 0☐ NO	214

TURN TO EXHIBIT 28

28. What fuel is used by this additional equipment?	01☐ GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD 02☐ GAS, LPG (BOTTLED OR TANK GAS) 03☐ FUEL OIL 04☐ KEROSENE OR COAL OIL 05☐ ELECTRICITY 06☐ COAL OR COKE 07☐ WOOD 08☐ SOLAR COLLECTORS 11☐ OTHER (SPECIFY): __________ ______________________	215-216

TAKE BACK EXHIBIT 28

29. Has any wood been burned in your home in the past 12 months?	1 ☐ YES 0 ☐ NO -- SKIP TO Q. 40	217
IF "YES," ASK:		
HAND RESPONDENT EXHIBIT 30		
30. Did your household burn less than a rack, or one rack or more? A rack is 16 in. x 4 ft. x 8 ft. or one third of a cord.	0 ☐ LESS THAN ONE RACK -- TAKE BACK EXHIBIT 30, SKIP TO Q. 40 1 ☐ ONE RACK OR MORE	218
IF "ONE RACK OR MORE," ASK:		219-221
31. About how many racks or cords of wood did you burn in the past 12 months? (PROBE FOR BEST ESTIMATE.)	NUMBER OF RACKS (16 in. x 4 ft. x 8 ft.): ☐ OR NUMBER OF CORDS (4 ft. x 4 ft. x 8 ft.): ☐ ☐ DON'T KNOW	
TAKE BACK EXHIBIT 30		
32. Was the wood you burned in the past 12 months mostly hardwood or mostly softwood? Hardwood is from broad-leaf trees such as maple, or birch. Softwood is from evergreens such as pine, spruce, or fir.	1 ☐ HARDWOOD 2 ☐ SOFTWOOD 6 ☐ DON'T KNOW	222
HAND RESPONDENT EXHIBIT 33		
33. About how much of the wood you burned in the past 12 months did you purchase?	0 ☐ NONE, VERY LITTLE (LESS THAN 5%) -- TAKE BACK EXHIBIT 33, SKIP TO Q. 38 1 ☐ 1/4 (5 - 33%) 2 ☐ 1/2 (34 - 66%) 3 ☐ 3/4 (67 - 95%) 4 ☐ ALL (96 - 100%)	223
TAKE BACK EXHIBIT 33		
IF 1/4 OR MORE PURCHASED, ASK:		
34. About when was your household's most recent purchase of wood?	MONTH: ☐	224-225
	YEAR: 19 ______	226-227
35. On your household's most recent purchase of wood, how was the wood measured: by the rack, cord, or some other measure? (IF "TRUCKLOAD," PROBE FOR SIZE OF TRUCK.)	1 ☐ RACK 2 ☐ CORD 5 ☐ OTHER (SPECIFY): ______________	228
36. About what was the price per (rack/cord/other measure) on your household's most recent purchase of wood?	PRICE: $______________	229-231
37. Did the purchase price include delivery of the wood to your home?	1 ☐ YES 0 ☐ NO	232

8

CONTINUE IF ONE RACK OR MORE OF WOOD WAS BURNED IN LAST 12 MONTHS. OTHERWISE, SKIP TO Q. 40.

HAND RESPONDENT EXHIBIT 38

38. We may have covered some of these before, but please look at this exhibit and tell me which of these you have in your house (apartment)?

233-240

			AMOUNT BURNED				
	HAVE	DO NOT HAVE	NONE (LESS THAN 5%)	1/4 (5 - 33%)	1/2 (34 - 66%)	3/4 (67 - 95%)	ALL (96 - 100%)
a. Fireplace	1[]	0[]	0[]	1[]	2[]	3[]	4[]
b. Airtight stove (with gasket)	1[]	0[]	0[]	1[]	2[]	3[]	4[]
c. Non-airtight stove (no gasket)	1[]	0[]	0[]	1[]	2[]	3[]	4[]
d. Wood-burning furnace	1[]	0[]	0[]	1[]	2[]	3[]	4[]

TURN TO EXHIBIT 39

39. About how much of the wood you burned in the past 12 months was burned in ____________________? (ASK FOR EACH TYPE OF EQUIPMENT HOUSEHOLD HAS.)

TAKE BACK EXHIBIT 39

HAND RESPONDENT EXHIBIT 40		
40. Which fuel is used most for heating water?	01[] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD 02[] GAS, LPG (BOTTLED OR TANK GAS) 03[] FUEL OIL 04[] KEROSENE OR COAL OIL 05[] ELECTRICITY 06[] COAL OR COKE 07[] WOOD 08[] SOLAR COLLECTORS 21[] OTHER (SPECIFY): ____________ 00[] NO FUEL USED -- SKIP TO Q. 43	241-242
TAKE BACK EXHIBIT 40		
41. Do you have hot running water in your home?	1[] YES 0[] NO -- SKIP TO Q. 43	243
IF 2 OR MORE HOUSING UNITS IN BUILDING, ASK Q. 42. OTHERWISE, SKIP TO Q. 43.		
42. Is your hot water supplied by a central system for your building (or group of buildings) or is the water heater for your living quarters only?	1[] CENTRAL SYSTEM FOR BUILDING(S) 2[] FOR THESE LIVING QUARTERS ONLY	244
43. Do you have air-conditioning, either a central system or individual window or wall units? (MARK ALL THAT APPLY.)	[] YES, CENTRAL SYSTEM [] YES, INDIVIDUAL (WINDOW/WALL) UNITS [] NO -- SKIP TO INSTRUCTION FOR Q. 48	245-246
44. How many rooms in your house (apartment) are cooled by air-conditioning? Do not count bathrooms, hallways, foyers, or enclosed porches.	NUMBER OF ROOMS: ☐ 97[] ENTIRE HOUSE OR APARTMENT	247-248
IF "INDIVIDUAL (WINDOW/WALL) UNITS" ON Q. 43 ASK:		
45. How many window or wall units do you have in your house (apartment)?	NUMBER OF (WINDOW/WALL) UNITS: ☐	249
IF "CENTRAL SYSTEM" ON Q. 43, ASK:		
46. Does the central air-conditioning system use gas or electricity?	1[] GAS 2[] ELECTRICITY 6[] DON'T KNOW	250
IF 2 OR MORE HOUSING UNITS IN BUILDING, ASK Q. 47. OTHERWISE SKIP TO INSTRUCTION FOR Q. 48.		
47. Is it a central air-conditioning system for your building (or group of buildings) or is the main air-conditioning equipment for your living quarters only?	1[] CENTRAL SYSTEM FOR BUILDING 2[] AIR-CONDITIONING IS FOR THESE LIVING QUARTERS ONLY	251

10

IF ONE-FAMILY HOUSE, ASK Q. 48 ff. OTHERWISE (TRAILER OR 2 OR MORE UNITS IN BUILDING) SKIP TO Q. 59.

48. Do you have insulation in all, or some, or none of the outside walls of your home?

1[] ALL
2[] SOME
0[] NONE 252
6[] DON'T KNOW

49. Do you have roof or ceiling insulation?

1[] YES
0[] NO -- SKIP TO Q. 54.
6[] DON'T KNOW -- SKIP TO Q. 54. 253

IF "YES," ASK:

50. Is all the roof or ceiling area insulated or just part of it?

1[] ALL 254
2[] PART

IF "PART," ASK:

HAND RESPONDENT EXHIBIT 51

51. About how much of the roof or ceiling area is insulated?

0[] NONE, VERY LITTLE (LESS THAN 5%)
1[] 1/4 (5 - 33%)
2[] 1/2 (34 - 66%) 255
3[] 3/4 (67 - 95%)
4[] ALL (96 - 100%)

TAKE BACK EXHIBIT 51

HAND RESPONDENT EXHIBIT 52

52. This exhibit shows different kinds of insulation. Please tell me whether or not you have each one in your roof or ceiling area.

a. BATT/BLANKET	1[] YES 0[] NO 6[] DON'T KNOW	______ INCHES [] DON'T KNOW	256-258
b. LOOSE PARTICLES/ LOOSE FILL	1[] YES 0[] NO 6[] DON'T KNOW	______ INCHES [] DON'T KNOW	259-261
c. FIRM FOAM/ FIRM PLASTIC	1[] YES 0[] NO 6[] DON'T KNOW	______ INCHES [] DON'T KNOW	262-264
d. SPRAYED-IN URETHANE FOAM	1[] YES 0[] NO 6[] DON'T KNOW	______ INCHES [] DON'T KNOW	265-267
e. OTHER (SPECIFY): ______	1[] YES 0[] NO 6[] DON'T KNOW	______ INCHES [] DON'T KNOW	268-270

FOR EACH "YES," ASK:

53. About how many inches of (INSULATION TYPE) do you have in your roof or ceiling area? ——

TAKE BACK EXHIBIT 52

CONTINUE IF ONE-FAMILY HOUSE. OTHERWISE SKIP TO Q. 59. *307-308:03*

HAND RESPONDENT EXHIBIT 54

54. Does this house have a basement, an enclosed crawl space, a crawl space open to the outside, a concrete slab, or a combination of these? (MARK ALL THAT APPLY.)

☐ BASEMENT *311*
☐ CRAWL SPACE -- ENCLOSED *312*
☐ CRAWL SPACE OPEN TO OUTSIDE *313*
☐ CONCRETE SLAB -- TAKE BACK EXHIBIT 54, SKIP TO Q. 59 *314*
☐ OTHER (SPECIFY): ________________ *315*
____

IF "BASEMENT," "CRAWL SPACE," OR "COMBINATION," ASK:

55. Is all, part, or none of the basement or crawl space heated?

1☐ ALL -- SKIP TO Q. 59
2☐ PART *316*
0☐ NONE

IF "PART" OR "NONE" IS HEATED, ASK:

TURN TO EXHIBIT 56

56. Think of the floor area above the unheated basement or crawl space. About how much of that floor area is insulated?

0☐ NONE, VERY LITTLE (LESS THAN 5%) -- TAKE BACK EXHIBIT 56, SKIP TO Q. 59
1☐ 1/4 (5 - 33%)
2☐ 1/2 (34 - 66%) *317*
3☐ 3/4 (67 - 95%)
4☐ ALL (96 - 100%)
6☐ DON'T KNOW

TURN TO EXHIBIT 57

57. Please look at this exhibit and tell me whether or not you have each one in the floor above your unheated basement and/or crawl space.

a. BATT/BLANKET	*1*☐ YES *0*☐ NO *6*☐ DON'T KNOW	________ INCHES ☐ DON'T KNOW	*318-320*
b. LOOSE PARTICLES/LOOSE FILL	*1*☐ YES *0*☐ NO *6*☐ DON'T KNOW	________ INCHES ☐ DON'T KNOW	*321-323*
c. FIRM FOAM/FIRM PLASTIC	*1*☐ YES *0*☐ NO *6*☐ DON'T KNOW	________ INCHES ☐ DON'T KNOW	*324-326*
d. SPRAYED-IN URETHANE FOAM	*1*☐ YES *0*☐ NO *6*☐ DON'T KNOW	________ INCHES ☐ DON'T KNOW	*327-329*
e. OTHER (SPECIFY):	*1*☐ YES *0*☐ NO *6*☐ DON'T KNOW	________ INCHES ☐ DON'T KNOW	*330-332*

FOR EACH "YES," ASK:

58. About how many inches of (INSULATION TYPE) do you have in the floor area above your unheated basement and/or crawl space?

TAKE BACK EXHIBIT 57

Appendix D (Continued)

12

HAND RESPONDENT EXHIBIT 59

59. Please look at this exhibit of different kinds of doors. How many of each of these types of doors do you have that go from a heated area to the outside or to an unheated area? (SEE INSTRUCTION BELOW.)

NUMBER OF DOORS	NUMBER WITH STORM DOOR OR INSULATING GLASS	NUMBER STORM/ INSULATED DOORS PUT IN SINCE JANUARY 1, 1979			
a. Sliding glass doors 333 ______ ☐ NONE	334 ______ ☐ NONE	335 ______ ☐ NONE	336-339 MONTH: ____ YEAR: 19___ ☐ IN PROCESS	1☐ DOORS AND HAVING THEM PUT IN 340 2☐ DOORS ONLY 5☐ OTHER (SPECIFY): ____	341-343 APPROXIMATE COST: $ ____.00 ☐ DON'T KNOW
b. Doors with glass panels 344 ______ ☐ NONE	345 ______ ☐ NONE	346 ______ ☐ NONE	347-350 MONTH: ____ YEAR: 19___ ☐ IN PROCESS	1☐ DOORS AND HAVING THEM PUT IN 351 2☐ DOORS ONLY 5☐ OTHER (SPECIFY): ____	352-354 APPROXIMATE COST: $ ____.00 ☐ DON'T KNOW
c. Regular doors (doors without glass panels) 355 ______ ☐ NONE	356 ______ ☐ NONE	357 ______ ☐ NONE	358-361 MONTH: ____ YEAR: 19___ ☐ IN PROCESS	1☐ DOORS AND HAVING THEM PUT IN 362 2☐ DOORS ONLY 5☐ OTHER (SPECIFY): ____	363-365 APPROXIMATE COST: $ ____.00 ☐ DON'T KNOW

TAKE BACK EXHIBIT 59

FOR EACH TYPE OF DOOR FOR WHICH ANSWER IS "ONE OR MORE," ASK:

60. (Does/How many of) the door(s) have (a storm door/storm doors) or insulating glass?

FOR EACH TYPE OF STORM DOOR OR DOOR WITH INSULATING GLASS, ASK:

61. How many of the (storm/insulated glass) doors were put in your home since January 1, 1979?

IF ONE OR MORE, ASK:

62. In what month and year did you get (it/them)?

63. (Did you pay/Are you paying) both for the door(s) and having the door(s) put in, only for the door(s) themselves, or what?

64. Approximately what (did/will) the job cost? (SEE INSTRUCTION BELOW.)

INTERVIEWER INSTRUCTIONS:

Q. 59 -- Count each pair of sliding glass doors as one door. Include doors that go to an unheated porch or garage. Do not include doors to a heated hallway in an apartment building, doors that are permanently sealed shut, or doors to an unheated attic or basement.

Q. 64 -- If more than one type of door was part of the same job and if respondent is unable to break down the cost among the different types, note below and record the total cost.

____

____

407-408:04

65. How many windows do you have in your home? Please include basement, attic, garage, and porch windows only if these areas are heated. (SEE INSTRUCTIONS BELOW.)

NUMBER OF WINDOWS: ☐ *409-410*

HAND RESPONDENT EXHIBIT 66

66. How many of your windows are these sizes?

NUMBER OF WINDOWS	NUMBER WITH STORM WINDOWS OR INSULATING GLASS	NUMBER STORM WINDOWS PUT IN SINCE JANUARY 1, 1979			
a. Large *411-412* ____ [] NONE	*413-414* ____ [] NONE	*415-416* ____ [] NONE	*417-420* MONTH: ____ YEAR: 19 ____ [] IN PROCESS	1[] WINDOWS AND HAVING THEM PUT IN *421* 2[] WINDOWS ONLY 3[] OTHER (SPECIFY): ____	*422-424* APPROXIMATE COST: $ ____.00 [] DON'T KNOW
b. Medium *425-426* ____ [] NONE	*427-428* ____ [] NONE	*429-430* ____ [] NONE	*431-434* MONTH: ____ YEAR: 19 ____ [] IN PROCESS	1[] WINDOWS AND HAVING THEM PUT IN *435* 2[] WINDOWS ONLY 3[] OTHER (SPECIFY): ____	*436-438* APPROXIMATE COST: $ ____.00 [] DON'T KNOW
c. Small *439-440* ____ [] NONE	*441-442* ____ [] NONE	*443-444* ____ [] NONE	*445-448* MONTH: ____ YEAR: 19 ____ [] IN PROCESS	1[] WINDOWS AND HAVING THEM PUT IN *449* 2[] WINDOWS ONLY 3[] OTHER (SPECIFY): ____	*450-452* APPROXIMATE COST: $ ____.00 [] DON'T KNOW

TAKE BACK EXHIBIT 66

67. How many of the ___ windows have storm windows or insulating glass? (SEE INSTRUCTIONS BELOW.)

IF ONE OR MORE WINDOWS WITH STORM WINDOWS OR INSULATING GLASS, ASK:

68. How many of the storm windows or windows with insulating glass were put in your home since January 1, 1979?

IF ONE OR MORE, ASK:

69. In what month and year did you get them?

70. (Did you pay/are you paying) for having the windows put in, only for the windows themselves, or what?

71. Approximately what (did/will) the job cost? (SEE INSTRUCTION BELOW.)

INTERVIEWER INSTRUCTIONS:

Q. 65 -- Each window that opens separately should be counted as one window. Also count windows that are fixed in place. Do not include windows (glass panels) in doors.

Q. 67 -- Windows made of double glass and other types of insulating glass count the same as storm windows.

Q. 71 -- If more than one type of window was part of the same job and if respondent is unable to break down the cost among the different types, note below and record the total cost.

Appendix D (Continued)

14

HAND RESPONDENT EXHIBIT 72

72. Please look at this list and tell me which items, if any, have been added or installed in your home since January 1, 1979? (SEE INSTRUCTIONS BELOW.)

a. CLOSEABLE SHUTTERS, PLASTIC SHEETS, INSULATING DRAPES	1☐ YES 0☐ NO 2☐ IN PROCESS	MONTH: ______ YEAR: 19____ ☐ IN PROCESS	453-457
b. CAULKING AROUND ANY WINDOWS OR DOORS TO THE OUTSIDE	1☐ YES 0☐ NO 2☐ IN PROCESS	MONTH: ______ YEAR: 19____ ☐ IN PROCESS	458-462
c. WEATHER STRIPPING AROUND ANY WINDOWS OR DOORS TO THE OUTSIDE	1☐ YES 0☐ NO 2☐ IN PROCESS	MONTH: ______ YEAR: 19____ ☐ IN PROCESS	463-467

FOR EACH "YES,", ASK:

73. In what month and year was it added or installed? (SEE INSTRUCTION BELOW.)

TAKE BACK EXHIBIT 72

INTERVIEWER INSTRUCTIONS:

Q. 72 -- Count as "In Process" any work started but not yet completed. Do not count any changes made before this household moved in.

Q. 73 -- If household has done item more than once, put down the most recent date.

507-508:05

74. In the past year, has any professional come to your home to advise you on how your household could save on its energy bills?

1[] YES

0[] NO -- SKIP TO Q. 77 *511*

IF "YES," ASK:

75. In what month and year did the visit occur?

MONTH: ________ *512-513*

YEAR: 19 ____ *514-515*

HAND RESPONDENT EXHIBIT 76

76. Was the professional a private contractor, a representative from the electric or gas company, a representative from a fuel oil or LPG company, or someone else?

1[] ELECTRIC OR GAS COMPANY REPRESENTATIVE -- SKIP TO INSTRUCTION FOR Q. 81

2[] FUEL OIL OR LPG COMPANY REPRESENTATIVE -- SKIP TO INSTRUCTION FOR Q. 81 *516*

3[] PRIVATE CONTRACTOR

5[] SOMEONE ELSE (SPECIFY): ________

--ASK Q. 77 IF BOX "1" OR "2" IS NOT MARKED

TAKE BACK EXHIBIT 76

IF ELECTRIC, GAS, FUEL OIL, OR LPG COMPANY REPRESENTATIVE NOT MENTIONED ON Q. 76 OR "NO" ON Q. 74, ASK:

77. If you request it, will your electric company or heating fuel supplier send a professional to inspect your house and advise you on ways to save energy?

1[] YES, THEY WILL *517*

0[] NO, THEY WON'T

6[] DON'T KNOW

SKIP TO INSTRUCTION FOR Q. 81

IF "YES," ASK:

78. Do you now have any plans to request this service from your electric company or heating fuel supplier?

1[] YES -- SKIP TO INSTRUCTION FOR Q. 81

0[] NO *518*

IF "NO," ASK:

79. Is there some reason you have for not requesting this service?

1[] YES *519*

0[] NO -- SKIP TO INSTRUCTION FOR Q. 81

IF "YES," ASK:

80. What is your reason?

____

____

____

Appendix D (Continued)

16

IF ONE-FAMILY HOUSE, ASK Q. 81 ff. IF TRAILER, SKIP TO Q. 86. IF 2 OR MORE UNITS IN BUILDING, SKIP TO Q. 98.

HAND RESPONDENT EXHIBIT 81

81.. Please look at this list and tell me which items, if any, have been added or installed in your home since January 1, 1979. (SEE INSTRUCTION BELOW.)

a. Roof or ceiling insulation 1[] YES 520 0[] NO 2[] IN PROCESS	521-524 MONTH: _____ YEAR: 19___ [] IN PROCESS	525 1[] BATT/BLANKET 2[] LOOSE PARTICLES/ LOOSE FILL 3[] FIRM FOAM/FIRM PLASTIC 4[] SPRAYED-IN URETHANE FOAM 6[] DON'T KNOW	526 1[] LABOR AND MATERIALS 2[] MATERIALS ONLY 5[] OTHER (SPECIFY): ________ ________	527-529 APPROXIMATE COST: $ ______.00 [] DON'T KNOW
b. Insulation in the outside walls 1[] YES 530 0[] NO 2[] IN PROCESS	531-534 MONTH: _____ YEAR: 19___ [] IN PROCESS	535 1[] BATT/BLANKET 2[] LOOSE PARTICLES/ LOOSE FILL 3[] FIRM FOAM/FIRM PLASTIC 4[] SPRAYED-IN URETHANE FOAM 6[] DON'T KNOW	536 1[] LABOR AND MATERIALS 2[] MATERIALS ONLY 5[] OTHER (SPECIFY): ________ ________	537-539 APPROXIMATE COST: $ ______.00 [] DON'T KNOW
c. Insulation in the basement or crawl space below floor of house 1[] YES 540 0[] NO 2[] IN PROCESS	541-544 MONTH: _____ YEAR: 19___ [] IN PROCESS	545 1[] BATT/BLANKET 2[] LOOSE PARTICLES/ LOOSE FILL 3[] FIRM FOAM/FIRM PLASTIC 4[] SPRAYED-IN URETHANE FOAM 6[] DON'T KNOW	546 1[] LABOR AND MATERIALS 2[] MATERIALS ONLY 5[] OTHER (SPECIFY): ________ ________	547-549 APPROXIMATE COST: $ ______.00 [] DON'T KNOW

TAKE BACK EXHIBIT 81

FOR EACH "YES" OR "IN PROCESS" ANSWER, ASK:

82. In what month and year was the work completed? (SEE INSTRUCTIONS BELOW.)

HAND RESPONDENT EXHIBIT 83

83. What type of insulation is it? (SEE INSTRUCTION BELOW.)

TAKE BACK EXHIBIT 83

84. (Did you pay/Are you paying) for labor and materials, only for materials, or what?

85. Approximately what (did/will) the job cost?

INTERVIEWER INSTRUCTIONS:

Q. 81 -- Mark "Yes," "No," or "In Process," for each item. Count as "In Process" any work started but not yet completed. Do not count changes made before this household moved in.

Q. 82 -- If household has done item more than once, write down the most recent date.

Q. 83 -- If more than one type of insulation, mark one used most.

IF ONE-FAMILY HOUSE OR TRAILER, ASK Q. 86 ff. OTHERWISE SKIP TO Q. 98.

86. Since January 1, 1979, has a heat pump or wood burning stove been installed in your home? (SEE INSTRUCTION BELOW.)

a. Heat pump *550* 1☐ YES 0☐ NO 2☐ IN PROCESS	*551-554* MONTH: ______ YEAR: 19____ ☐ IN PROCESS	1☐ LABOR AND MATERIALS *555* 2☐ MATERIALS ONLY 5☐ OTHER (SPECIFY): ______ __________________	*556-559* APPROXIMATE COST: $ ________.00 ☐ DON'T KNOW
b. Wood-burning stove 1☐ YES *560* 0☐ NO 2☐ IN PROCESS	*561-564* MONTH: ______ YEAR: 19____ ☐ IN PROCESS	1☐ LABOR AND MATERIALS *565* 2☐ MATERIALS ONLY 5☐ OTHER (SPECIFY): ______ __________________	*566-569* APPROXIMATE COST: $ ________.00 ☐ DON'T KNOW

FOR EACH "YES" OR "IN PROCESS" ANSWER, ASK:

87. In what month and year was the work completed? (SEE INSTRUCTION BELOW.)

88. (Did you pay/Are you paying) for labor and materials or only for materials?

89. Approximately what (did/will) the job cost?

INTERVIEWER INSTRUCTIONS:

Q. 86 -- Mark "Yes," "No," or "In Process" for each item. Count as "In Process" any work started but not yet completed. Do not count any changes made before this household moved in.

Q. 87 -- If household has done item more than once, write down most recent date.

18

CONTINUE IF ONE-FAMILY HOUSE OR TRAILER. OTHERWISE SKIP TO Q. 98.

007-008:08

HAND RESPONDENT EXHIBIT 90

90. Please look at this list and tell me which items, if any, have been added or installed in your home since January 1, 1979. (SEE INSTRUCTION BELOW.)

	YES	NO	IN PROCESS	MONTH	YEAR	IN PROCESS	
a. An automatic or clock thermostat	1☐	0☐	2☐	____	19__	☐	011-015
b. Adjustments to thermostat control (recalibration)	1☐	0☐	2☐	____	19__	☐	016-020
c. An additional thermostat (zoned your home)	1☐	0☐	2☐	____	19__	☐	021-025
d. Smaller nozzle or burner or smaller line on furnace	1☐	0☐	2☐	____	19__	☐	026-030
e. Flame retention head burner for furnace (fuel oil)	1☐	0☐	2☐	____	19__	☐	031-035
f. Automatic flue door (vent damper)	1☐	0☐	2☐	____	19__	☐	036-040
g. Electrical or mechanical furnace ignition system (spark ignition)	1☐	0☐	2☐	____	19__	☐	041-045
h. Insulation around heating ducts	1☐	0☐	2☐	____	19__	☐	046-050
i. Insulation around the hot water pipes	1☐	0☐	2☐	____	19__	☐	051-055
j. Insulation around the hot water heater	1☐	0☐	2☐	____	19__	☐	056-060
k. Meter which displays the cost of energy	1☐	0☐	2☐	____	19__	☐	061-065
l. Other energy-saving devices (Specify): ____________	1☐	0☐	2☐	____	19__	☐	066-070

FOR EACH "YES," ASK:

91. In what month and year was the work completed? (SEE INSTRUCTIONS BELOW.)

TAKE BACK EXHIBIT 90

INTERVIEWER INSTRUCTIONS:

Q. 90 -- Mark "Yes," "No," or "In Process" for each item. Count as "In Process" any work started but not yet completed. Do not count any changes made before this household moved in.

Q. 91 -- If household has done item more than once, write down most recent date.

CONTINUE IF ONE-FAMILY HOUSE OR TRAILER, OTHERWISE SKIP TO Q. 98. 707-708:07

92. In some communities there are programs to help some people save energy by providing and installing such things as insulation, storm windows, or storm doors at no cost to the household. Do you know of such a program in your community?

1[] YES 711
0[] NO -- SKIP TO Q. 95

IF "YES," ASK:

93. Have you made use of the program?

1[] YES 712
0[] NO -- SKIP TO Q. 95

IF "YES," ASK:

HAND RESPONDENT EXHIBIT 94

94. Which of these things have you had done, at no cost to you, through the program?

[] ATTIC INSULATION 713
[] INSULATION IN OUTSIDE WALLS 714
[] INSULATION IN FLOOR AREA ABOVE UNHEATED BASEMENT OR CRAWL SPACE 715
[] STORM DOORS ADDED 716
[] STORM WINDOWS ADDED 717
[] OTHER (SPECIFY): ____________ 718
____

TAKE BACK EXHIBIT 94

95. Do you have your own swimming pool?

1[] YES 719
0[] NO -- SKIP TO Q. 98

IF "YES," ASK:

96. Do you use a pool heater?

1[] YES 720
0[] NO -- SKIP TO Q. 98

IF "YES," ASK:

97. What fuel is used with the heater?

01[] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
02[] GAS, LPG (BOTTLED OR TANK GAS)
03[] FUEL OIL
04[] KEROSENE OR COAL OIL
05[] ELECTRICITY 721-722
06[] COAL OR COKE
07[] WOOD
08[] SOLAR COLLECTORS
21[] OTHER (SPECIFY): ____________
____

Appendix D (Continued)

20

98. Do you have a refrigerator in your home that is presently in use?	1[] YES 0[] NO -- SKIP TO Q. 102	723

IF "YES," ASK:

99. Do you have one refrigerator or more than one that is presently in use? (How many altogether?)	1[] ONE 2[] TWO 3[] THREE OR MORE	724

ASK ABOUT EACH REFRIGERATOR -- FIRST ASK ABOUT REFRIGERATOR USED MOST:

	REFRIGERATOR #1	REFRIGERATOR #2
100. Is it electric or gas?	1[] ELECTRIC 2[] GAS 725	1[] ELECTRIC 2[] GAS 727
HAND RESPONDENT EXHIBIT 101		
101. Which of these best describes your refrigerator? (MARK ALL THAT APPLY.)		
• Freezer section (or ice cube section) must be defrosted periodically	1[] 726	1[] 728
• Freezer section defrosts automatically after frost builds up (catch pan must be emptied). . . .	2[]	2[]
• Full frost-free (frost does not build up).	3[]	3[]
• No working freezer section	4[]	4[]

TAKE BACK EXHIBIT 101

102. Do you have a home freezer (that is separate from the refrigerator) that is presently in use?	1[] YES 0[] NO -- SKIP TO Q. 106	729

IF "YES," ASK:

103. Do you have one freezer or more than one that is presently in use? (How many altogether?)	1[] ONE 2[] TWO 3[] THREE OR MORE	730

ASK ABOUT EACH FREEZER -- ASK FIRST ABOUT FREEZER USED MOST:

	FREEZER #1	FREEZER #2
104. Is it electric or gas?	1[] ELECTRIC 2[] GAS 731	1[] ELECTRIC 2[] GAS 733
105. Is it a frost-free freezer or must it be defrosted?	732 1[] FROST-FREE 2[] MUST DEFROST	734 1[] FROST-FREE 2[] MUST DEFROST

HAND RESPONDENT EXHIBIT 106

106. Thinking of all the different kinds of cooking done here, including cooking in the oven, on a range, and with small appliances, which fuel is used most?

01[] GAS FROM UNDERGROUND PIPES SERVING THE NEIGHBORHOOD
02[] GAS, LPG (BOTTLED OR TANK GAS)
03[] FUEL OIL
04[] KEROSENE OR COAL OIL
05[] ELECTRICITY 735-736
06[] COAL OR COKE
07[] WOOD
21[] OTHER (SPECIFY): ____________
00[] NO COOKING DONE -- SKIP TO Q. 112

TAKE BACK EXHIBIT 106

107. Does your household use an oven of any type, including microwave ovens, for cooking at least occasionally?

1[] YES 737
0[] NO -- SKIP TO Q. 112

IF "YES," ASK:

108. Do you have one oven or more than one oven that you presently use? (How many altogether?)

1[] ONE
2[] TWO 738
3[] THREE OR MORE

ASK ABOUT EACH OVEN -- ASK FIRST ABOUT OVEN USED MOST:

		OVEN #1	OVEN #2
109. Is it electric or gas?	ELECTRIC	1[]	1[]
	GAS	2[]	2[]
IF "ELECTRIC," ASK: 110. Is it a microwave oven?	YES	1[]	1[]
	NO	0[]	0[]
111. Does your oven have a self-cleaning or continuous cleaning feature?	SELF-CLEANING	1[]	1[]
	CONTINUOUS CLEANING	2[]	2[]
	NEITHER OF THESE	0[]	0[]
		739-741	742-744

Appendix D (Continued)

22

HAND RESPONDENT EXHIBIT 112

112. Which of these do you use here in your (home/apartment)?

ELECTRIC RANGE (STOVE-TOP OR BURNERS)	1☐ YES	0☐ NO	745
GAS RANGE (STOVE-TOP OR BURNERS)	1☐ YES	0☐ NO	746
OUTDOOR GAS GRILL	1☐ YES	0☐ NO	747
AUTOMATIC CLOTHES WASHER	1☐ YES	0☐ NO	748
WRINGER WASHING MACHINE (ELECTRIC)	1☐ YES	0☐ NO	749
ELECTRIC DISHWASHER	1☐ YES	0☐ NO	750
ELECTRIC CLOTHES DRYER	1☐ YES	0☐ NO	751
GAS CLOTHES DRYER	1☐ YES	0☐ NO	752
OUTDOOR GAS LIGHT	1☐ YES	0☐ NO	753
ELECTRIC DEHUMIDIFIER	1☐ YES	0☐ NO	754
ELECTRIC HUMIDIFIER	1☐ YES	0☐ NO	755
EVAPORATIVE COOLER (SWAMP COOLER)	1☐ YES	0☐ NO	756
BLACK AND WHITE TELEVISION SET	☐ YES	☐ NO	757 NUMBER: ☐
COLOR TELEVISION SET	☐ YES	☐ NO	758 NUMBER: ☐

IF "YES" FOR BLACK AND WHITE TV SET, ASK:

113. How many black and white television sets do you use here in your home?

IF "YES" FOR COLOR TV SET, ASK:

114. How many color television sets do you use here in your home?

TAKE BACK EXHIBIT 112

115. Now I have some questions about the people who live here. Please tell me who they are, just in relation to you (if they are related to you), and their ages on their last birthdays. Please begin with yourself.

807-808:08

PERSON NUMBER	RELATIONSHIP TO RESPONDENT	SEX		AGE	Q. 120 - EMPLOYMENT (AGE 14+)			
		FEMALE	MALE		FULL TIME	PART TIME	NOT EMPLOYED	
1	RESPONDENT	1[]	2[]		1[]	2[]	0[]	811-816
2		1[]	2[]		1[]	2[]	0[]	821
3		1[]	2[]		1[]	2[]	0[]	831
4		1[]	2[]		1[]	2[]	0[]	841
5		1[]	2[]		1[]	2[]	0[]	851
6		1[]	2[]		1[]	2[]	0[]	861
7		1[]	2[]		1[]	2[]	0[]	871 907-908:09
8		1[]	2[]		1[]	2[]	0[]	911
9		1[]	2[]		1[]	2[]	0[]	921
10		1[]	2[]		1[]	2[]	0[]	931
11		1[]	2[]		1[]	2[]	0[]	941
12		1[]	2[]		1[]	2[]	0[]	951

I have listed (READ RELATIONSHIPS FROM Q. 115 ABOVE). Have I missed.....

116. Any babies or small children?	[] YES (ADD TO LISTING) [] NO	981-982
117. Any lodgers, boarders, or persons in your employ who live here?	[] YES (ADD TO LISTING) [] NO	
118. Anyone who usually lives here but is away traveling or in the hospital? (SEE INSTRUCTION BELOW.)	[] YES (ADD TO LISTING) [] NO	
119. Anyone else staying here who does not have a regular residence elsewhere?	[] YES (ADD TO LISTING) [] NO	

FOR EACH PERSON AGED 14 YEARS OR OLDER, ASK:

120. Is he/she employed full-time (30 hours or more per week), part-time, or not employed?

121. Does another family share your home with you?	1[] YES -- SEE INSTRUCTION BELOW 0[] NO	983

INTERVIEWER INSTRUCTIONS:

Q. 118 -- Persons who are normally members of the household but who are now living away from home (e.g., college students or members of the Armed Forces) should not be listed.

Q. 121 -- If another family shares the same housing unit, members should be listed in household composition table above.

If another family has a separate apartment that is defined by our rules as a separate housing unit, the additional housing unit should be listed on your housing unit address list for this location. See sampling instructions to see whether an additional interview should be completed.

24

INTERVIEWER: MARK ANSWER. ASK, IF NECESSARY.

RESPONDENT'S MARITAL STATUS

122. Are you now married, widowed, divorced, or separated, or have you never been married?

1[] NOW MARRIED
2[] WIDOWED
3[] DIVORCED OR SEPARATED
4[] NEVER MARRIED

984

HAND RESPONDENT EXHIBIT 123

123. Which of the groups on this exhibit best describes your origin?

1[] WHITE
2[] BLACK OR NEGRO
3[] AMERICAN INDIAN, ALASKAN NATIVE
4[] ASIAN, PACIFIC ISLANDER
5[] OTHER (SPECIFY): ____________

____

985

TAKE BACK EXHIBIT 123

124. Are you of Spanish origin; that is, from a Spanish-American family?

1[] YES
0[] NO

986

IF "YES," ASK:

HAND RESPONDENT EXHIBIT 125

125. Which of these types of Spanish-Americans best describes you?

1[] MEXICAN, MEXICAN-AMERICAN, CHICANO
2[] PUERTO RICAN
3[] CUBAN
5[] OTHER/SPANISH/HISPANIC

987

TAKE BACK EXHIBIT 125

126. How many members of your household can drive a car?

NUMBER OF DRIVERS: ☐

[] NONE

988-989

HAND RESPONDENT EXHIBIT 127 *1007-1008:10*

127. Do you or other members of your household own or have the regular use of any cars, trucks, vans, or similar vehicles? (DO NOT INCLUDE MOTORCYCLES OR MOPEDS.)

1[] YES

0[] NO -- TAKE BACK EXHIBIT 127, SKIP TO INSTRUCTION FOR Q. 137 *1011*

IF "YES," ASK:

128. How many do you have?

NUMBER OF VEHICLES: ☐ *1012-1013*

		VEHICLE NUMBER			
		1	2	3	4
129. Which type(s) do you have? (IF HOUSEHOLD HAS MORE THAN FOUR VEHICLES, MARK ANSWERS FOR THE FOUR VEHICLES USED MOST.)	STATION WAGON	01[] *1014-1015*	01[] *1029-1030*	01[] *1044-1045*	01[] *1059-1060*
	AUTOMOBILE	02[]	02[]	02[]	02[]
	JEEP OR SIMILAR VEHICLE	03[]	03[]	03[]	03[]
	PASSENGER VAN OR MINIBUS	04[]	04[]	04[]	04[]
	CARGO VAN	05[]	05[]	05[]	05[]
	PICKUP TRUCK	06[]	06[]	06[]	06[]
	OTHER TRUCK	07[]	07[]	07[]	07[]
	MOTOR HOME	08[]	08[]	08[]	08[]
	OTHER (SPECIFY):	11[] ______	11[] ______	11[] ______	11[] ______
130. Please tell me the make and model name (of each one).	MAKE	*1016-1017* ______	*1031-1032* ______	*1046-1047* ______	*1061-1062* ______
	MODEL NAME	*1018-1019* ______	*1033-1034* ______	*1048-1049* ______	*1063-1064* ______
131. What is the model year (of each one)? (ENTER LAST TWO DIGITS OF MODEL YEAR.)	MODEL YEAR	*1020-1021* 19______	*1035-1036* 19______	*1050-1051* 19______	*1065-1066* 19______
TAKE BACK EXHIBIT 127		*1022*	*1037*	*1052*	*1067*
132. Is it used on the job by anyone in your household not counting going to or from work?	YES	1[]	1[]	1[]	1[]
	NO	0[]	0[]	0[]	0[]

26

CONTINUE IF ONE OR MORE VEHICLES ON Q. 128. OTHERWISE SKIP TO INSTRUCTION FOR Q. 137.

		VEHICLE NUMBER			
		1	2	3	4
HAND RESPONDENT EXHIBIT 133					
133. What kind of fuel is used most frequently?		1023-1024	1038-1039	1053-1054	1068-1069
	UNLEADED REGULAR GASOLINE	01[]	01[]	01[]	01[]
	UNLEADED PREMIUM GASOLINE	02[]	02[]	02[]	02[]
	REGULAR GASOLINE	03[]	03[]	03[]	03[]
	PREMIUM OR HIGH TEST GASOLINE	04[]	04[]	04[]	04[]
	GASOHOL	05[]	05[]	05[]	05[]
	DIESEL	06[]	06[]	06[]	06[]
	ELECTRICITY	07[]	07[]	07[]	07[]
	OTHER (SPECIFY):	21[] ____	21[] ____	21[] ____	21[] ____
	DON'T KNOW	96[]	96[]	96[]	96[]
TURN TO EXHIBIT 134		1025-1026	1040-1041	1055-1056	1070-1071
134. What type of engine does it have?	1-CYLINDER	01[]	01[]	01[]	01[]
	2-CYLINDER	02[]	02[]	02[]	02[]
	3-CYLINDER	03[]	03[]	03[]	03[]
	4-CYLINDER	04[]	04[]	04[]	04[]
	5-CYLINDER	05[]	05[]	05[]	05[]
	6-CYLINDER	06[]	06[]	06[]	06[]
	8-CYLINDER	08[]	08[]	08[]	08[]
	ROTARY	09[]	09[]	09[]	09[]
	ELECTRIC	10[]	10[]	10[]	10[]
	OTHER (SPECIFY):	21[] ____	21[] ____	21[] ____	21[] ____
	DON'T KNOW	96[]	96[]	96[]	96[]
TAKE BACK EXHIBIT 134		1027	1042	1057	1072
135. Does it have air-conditioning?	YES	1[]	1[]	1[]	1[]
	NO	0[]	0[]	0[]	0[]
136. Does it have an automatic transmission or a manual shift?		1028	1043	1058	1073
	AUTOMATIC	2[]	1[]	1[]	1[]
	MANUAL SHIFT	2[]	2[]	2[]	2[]

CHECK BACK TO Q. 120 ON PAGE 23. MARK APPROPRIATE BOXES.

	RESPONDENT	SPOUSE
	1107-1108:11	
EMPLOYED FULL/PART TIME	1[]	1[]
NOT EMPLOYED	0[]	0[]
NO SPOUSE IN HOUSEHOLD		9[]
	1111	1126

IF RESPONDENT AND/OR SPOUSE (IF IN HOUSEHOLD) IS EMPLOYED, ASK Q. 137 ff. OTHERWISE SKIP TO Q. 144.

ASK ABOUT RESPONDENT FIRST, THEN SPOUSE

137. How many miles is it from your home to the place where (you work/your husband or wife works)? (IF RESPONDENT OR SPOUSE HAS NO FIXED PLACE OF WORK, CHECK "NO FIXED PLACE.")

	RESPONDENT	SPOUSE
	1112-1113	1127-1128
LESS THAN 1 MILE	01[]	01[]
1-4 MILES	02[]	02[]
5-9 MILES	03[]	03[]
10-14 MILES	04[]	04[]
15-19 MILES	05[]	05[]
20-29 MILES	06[]	06[]
30 OR MORE MILES	07[]	07[]
NO FIXED PLACE OF WORK	11[]	11[]
WORK AT HOME	00[]	00[]

38. How (do you/does your husband or wife) usually get to work? (IF MORE THAN ONE MODE OF TRAVEL, ASK ABOUT MODE USED FOR GREATEST DISTANCE.)

	RESPONDENT	SPOUSE
	1114-1115	1129-1130
BUS OR STREETCAR	01[]	01[]
SUBWAY, ELEVATED	02[]	02[]
COMMUTER TRAIN	03[]	03[]
TAXI	04[]	04[]
AUTOMOBILE OTHER THAN TAXI	05[]	05[]
TRUCK	06[]	06[]
MOTORCYCLE OR MOPED	07[]	07[]
WALK OR BICYCLE	08[]	08[]
WORK AT HOME	00[]	00[]

IF "AUTOMOBILE OTHER THAN TAXI" OR "TRUCK," ASK:

139. (Do you/Does your husband or wife) usually ride alone or with other people?

	RESPONDENT	SPOUSE
	1116	1131
ALONE	1[]	1[]
WITH OTHERS	2[]	2[]

IF "WITH OTHERS":

140. How many other people?

	RESPONDENT	SPOUSE
	1117	1132
NUMBER	____	____

141. About how long would it take (you/your husband or wife) one way to go to work if some form of public transportation were used -- from time leaving home until arriving at work?

	RESPONDENT	SPOUSE
	1118-1120	1133-1135
MINUTES FOR TRIP, ONE WAY	____	____
NOT POSSIBLE TO USE PUBLIC TRANSPORTATION	995[]	995[]

142. How much time is usually required for (you/your husband or wife) to get to work -- from time leaving home until arriving at work?

	RESPONDENT	SPOUSE
	1121-1123	1136-1138
MINUTES FOR TRIP, ONE WAY	____	____

143. About how many round trips are made between home and work each week?

	RESPONDENT	SPOUSE
	1124-1125	1139-1140
NUMBER OF ROUND TRIPS	____	____

I have just a few questions for background statistical purposes.

144. What is the highest grade (or year) you attended in school?

00☐ NEVER ATTENDED SCHOOL -- SKIP TO Q. 146

01☐ FIRST
02☐ SECOND
03☐ THIRD
04☐ FOURTH
05☐ FIFTH
06☐ SIXTH
07☐ SEVENTH
08☐ EIGHTH
09☐ NINTH
10☐ TENTH
11☐ ELEVENTH
12☐ TWELFTH

1141-1142

COLLEGE (ACADEMIC YEARS)

13☐ C1
14☐ C2
15☐ C3
16☐ C4
17☐ C5
18☐ C6 OR MORE

145. Did you finish that grade (or year)?

1☐ YES
0☐ NO

1143

146. At any time in 1979, did you work for pay at a job or business?

1☐ YES
0☐ NO -- SKIP TO Q. 148

1144

IF "YES," ASK:

147. During 1979, in how many weeks did you work even for a few hours? Include paid vacation and sick leave as work.

NUMBER OF WEEKS: ☐

1145-1146

IF LESS THAN 50 WEEKS, OR "NO" ON Q. 146, ASK:

HAND RESPONDENT EXHIBIT 148/153

148. What was the main reason you did not work (the remaining weeks) in 1979? (READ EACH RESPONSE). Were you . . .

01☐ LOOKING FOR WORK (OR ON LAY-OFF)
02☐ ILL OR DISABLED AND UNABLE TO WORK
03☐ TAKING CARE OF FAMILY
04☐ GOING TO SCHOOL
05☐ UNABLE TO FIND WORK
06☐ IN ARMED FORCES
07☐ RETIRED
08☐ DOING SOMETHING ELSE

1147-1148

TAKE BACK EXHIBIT 148/153

IF RESPONDENT IS MARRIED, ASK Q. 149 ff. OTHERWISE SKIP TO Q. 154.

149. **What is the highest grade (or year) that your (husband/wife) attended in school?**

00☐ NEVER ATTENDED SCHOOL -- SKIP TO Q. 151

01☐ FIRST
02☐ SECOND
03☐ THIRD
04☐ FOURTH
05☐ FIFTH
06☐ SIXTH
07☐ SEVENTH
08☐ EIGHTH
09☐ NINTH
10☐ TENTH
11☐ ELEVENTH
12☐ TWELFTH

COLLEGE (ACADEMIC YEARS)

13☐ C1
14☐ C2
15☐ C3
16☐ C4
17☐ C5
18☐ C6 OR MORE

1149-1150

150. Did (he/she) finish that grade (or year)?

1☐ YES
0☐ NO

1151

151. At any time in 1979, did your (husband/wife) work for pay at a job or business?

1☐ YES
0☐ NO -- SKIP TO Q. 153

1152

IF "YES," ASK:

152. During 1979, in how many weeks did your (husband/wife) work even for a few hours? Include paid vacation and sick leave as work.

NUMBER OF WEEKS: ________

1153-1154

IF LESS THAN 50 WEEKS, OR "NO" ON Q. 151 ASK:

HAND RESPONDENT EXHIBIT 148/153

153. What was the main reason your (husband/wife) did not work (the remaining weeks) in 1979? (READ EACH RESPONSE). Was he/she . . .

01☐ LOOKING FOR WORK (OR ON LAY-OFF)
02☐ ILL OR DISABLED AND UNABLE TO WORK
03☐ TAKING CARE OF FAMILY
04☐ GOING TO SCHOOL
05☐ UNABLE TO FIND WORK
06☐ IN ARMED SERVICES
07☐ RETIRED
08☐ DOING SOMETHING ELSE

1155-1156

TAKE BACK EXHIBIT 148/153

HAND RESPONDENT EXHIBIT 154

154. Now let's look at this list of income groups. Please tell me which group letter best describes the total combined income in 1979 of all members of your family living here, from all sources -- wages, dividends, Social Security, and so forth -- before taxes and deductions. (Family includes all related persons living in this household.)

CIRCLE LETTER FOR INCOME GROUP

01	A	LOSS	*14*	N	$14,000 - $14,999
02	B	$0 - $2,999	*15*	O	$15,000 - $16,999
03	C	$3,000 - $3,999	*16*	P	$17,000 - $19,999
04	D	$4,000 - $4,999	*17*	Q	$20,000 - $24,999
05	E	$5,000 - $5,999	*18*	R	$25,000 - $29,999
06	F	$6,000 - $6,999	*19*	S	$30,000 - $34,999
07	G	$7,000 - $7,999	*20*	T	$35,000 - $39,999
08	H	$8,000 - $8,999	*21*	U	$40,000 - $49,999
09	I	$9,000 - $9,999	*22*	V	$50,000 - $74,999
10	J	$10,000 - $10,999	*23*	W	$75,000 OR OVER
11	K	$11,000 - $11,999	*96*	[]	DON'T KNOW
12	L	$12,000 - $12,999	*97*	[]	REFUSED
13	K	$13,000 - $13,999			

1157-1158

TAKE BACK EXHIBIT 154

155. Do you or members of your household own your home or do you rent?	*1*[] OWN (BUYING) *2*[] RENT -- SKIP TO Q. 157 *3*[] OCCUPIED WITHOUT PAYMENT OF RENT -- SKIP TO Q. 157	*1159*

IF "OWN (BUYING)," ASK:

156. Is this house (apartment) part of a condominium or cooperative?	*1*[] YES, CONDOMINIUM *2*[] YES, COOPERATIVE *0*[] NO	*1160*

HAND RESPONDENT EXHIBIT 157

157. We may have covered some of these points before, but just to be sure, please look at this exhibit and tell me whether these fuels are used here in your household.

		USED	NOT USED	PAID BY HOUSEHOLD	INCLUDED IN RENT	OTHER (SPECIFY)	
	ELECTRICITY						
a.	FOR HOT WATER	1☐	0☐	1☐	2☐	5☐ ____________	1161-1162
b.	FOR HEATING YOUR HOME	1☐	0☐	1☐	2☐	5☐ ____________	1163-1164
c.	FOR AIR-CONDITIONING (CENTRAL OR WINDOW/WALL UNITS)	1☐	0☐	1☐	2☐	5☐ ____________	1165-1166
d.	FOR COOKING	1☐	0☐	1☐	2☐	5☐ ____________	1167-1168
e.	FOR LIGHTING AND OTHER APPLIANCES	1☐	0☐	1☐	2☐	5☐ ____________	1169-1170
	GAS FROM UNDERGROUND PIPES SERVING YOUR NEIGHBORHOOD						
f.	FOR HOT WATER	1☐	0☐	1☐	2☐	5☐ ____________	1171-1172
g.	FOR HEATING YOUR HOME	1☐	0☐	1☐	2☐	5☐ ____________	1173-1174
h.	FOR CENTRAL AIR-CONDITIONING	1☐	0☐	1☐	2☐	5☐ ____________	1175-1176
i.	FOR COOKING	1☐	0☐	1☐	2☐	5☐ ____________	1177-1178
j.	FOR OTHER APPLIANCES (INCLUDE OUTSIDE GAS LIGHT HERE)	1☐	0☐	1☐	2☐	5☐ ____________	1179-1180
	GAS, LPG (BOTTLED OR TANK GAS)					1207-1208:18	
k.	FOR HOT WATER	1☐	0☐	1☐	2☐	5☐ ____________	1211-1212
l.	FOR HEATING YOUR HOME	1☐	0☐	1☐	2☐	5☐ ____________	1213-1214
m.	FOR CENTRAL AIR-CONDITIONING	1☐	0☐	1☐	2☐	5☐ ____________	1215-1216
n.	FOR COOKING INSIDE HOME	1☐	0☐	1☐	2☐	5☐ ____________	1217-1218
o.	FOR COOKING ON OUTDOOR GRILL	1☐	0☐	1☐	2☐	5☐ ____________	1219-1220
p.	FOR OTHER APPLIANCES	1☐	0☐	1☐	2☐	5☐ ____________	1221-1222
	FUEL OIL OR KEROSENE						
q.	FOR HOT WATER	1☐	0☐	1☐	2☐	5☐ ____________	1223-1224
r.	FOR HEATING YOUR HOME	1☐	0☐	1☐	2☐	5☐	1225-1226

FOR EACH USE OF EACH FUEL, ASK:

158. Is that paid for by your household, included in your rent, or do you get it some other way?

TAKE BACK EXHIBIT 157

IF ONE-FAMILY HOUSE OR TRAILER AND IF UNDERGROUND GAS IS NOT USED, ASK Q. 159. OTHERWISE SKIP TO INSTRUCTION FOR Q. 160.

159. Is gas from underground pipes available in this neighborhood?

1☐ YES
0☐ NO
8☐ DON'T KNOW

1227

IF ALL FUEL BILLS ARE INCLUDED IN RENT, SKIP TO Q. 186.

32

IF HOUSEHOLD USES AND PAYS FOR GAS, LPG (SEE QUESTIONS 157-158, PARTS k-p), ASK Q. 160 ff. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 163.

160. About how many deliveries of LPG does your household usually get in a year?

NUMBER OF DELIVERIES: ☐ 1228-1229

95☐ LIVED HERE LESS THAN ONE YEAR

00☐ NONE DELIVERED, CASH AND CARRY, PICK UP AT STORE

161. Did you buy LPG for this house (apartment) in the past 12 months from one company or from more than one company?

1☐ ONE COMPANY 1230

2☐ MORE THAN ONE COMPANY

IF "MORE THAN ONE COMPANY," ASK:

162. How many different companies?

2☐ TWO

3☐ THREE 1231

4☐ FOUR OR MORE

IF HOUSEHOLD USES AND PAYS FOR FUEL OIL OR KEROSENE (SEE QUESTIONS 157-158, PARTS q and r), ASK Q. 163 ff. OTHERWISE SKIP TO INSTRUCTION FOR Q. 176.

163. How many tanks do you have for fuel oil or kerosene?

1☐ ONE

2☐ TWO 1232

3☐ THREE OR MORE

	TANK #1	TANK #2
164. What is the capacity of the tank (each tank) in total gallons?	☐ ☐ 275 GALLONS 1233- ☐ 550 GALLONS 1236 ☐ 1000 GALLONS ☐ OTHER - (SPECIFY): ______	☐ ☐ 275 GALLONS 1246- ☐ 550 GALLONS 1249 ☐ 1000 GALLONS ☐ OTHER - (SPECIFY): ______
165. Did you have this same tank in January 1979, or is it a replacement (or has it been added since January 1979)?	1☐ SAME TANK 1237 2☐ REPLACEMENT 3☐ ADDITIONAL TANK	1☐ SAME TANK 1250 2☐ REPLACEMENT 3☐ ADDITIONAL TANK
IF REPLACEMENT TANK, ASK: 166. What was the capacity of the tank that was replaced?	☐ ☐ 275 GALLONS ☐ 550 GALLONS 1238-1241 ☐ 1000 GALLONS ☐ OTHER - (SPECIFY): ______	☐ ☐ 275 GALLONS ☐ 550 GALLONS 1251-1254 ☐ 1000 GALLONS ☐ OTHER -(SPECIFY): ______
167. In what month and year was it replaced?	1242-1245 MONTH: ______ YEAR: 19____	1255-1258 MONTH: ______ YEAR: 19____

CONTINUE IF HOUSEHOLD USES AND PAYS FOR FUEL OIL OR KEROSENE. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 176.

HAND RESPONDENT EXHIBIT 168

168. About how much fuel oil/kerosene does your household use in a year -- which of these groups would it be?	1☐ LESS THAN 100 GALLONS PER YEAR 2☐ 100-499 GALLONS PER YEAR 3☐ 500-999 GALLONS PER YEAR 4☐ 1000 GALLONS OR MORE	*1259*

TAKE BACK EXHIBIT 168

169. About how many times a year does your household purchase fuel oil/kerosene?	NUMBER OF DELIVERIES: ☐ 95☐ LIVED HERE LESS THAN 1 YEAR	*1260-1261*
170. Did you buy fuel oil for this house (apartment) in the past 12 months from one company, or from more than one company?	1☐ ONE COMPANY 2☐ MORE THAN ONE COMPANY	*1262*
IF "MORE THAN ONE," ASK: 171. How many different companies?	2☐ TWO 3☐ THREE 4☐ FOUR OR MORE	*1263*
172. About what did your household pay per gallon on your last delivery/purchase of fuel oil/kerosene?	PRICE PER GALLON: ☐ ☐ DON'T KNOW	*1264-1266*
173. In what month and year did you have your last delivery/purchase of fuel oil/kerosene?	MONTH: ☐	*1267-1268*
	YEAR: 19 ____	*1269-1270*
174. Since the beginning of June, 1980, has your household had any problems getting fuel oil/kerosene when it was needed?	1☐ YES 0☐ NO 5☐ HAVEN'T NEEDED ANY	*1271*
IF "YES," ASK: 175. Was the problem that no fuel oil/kerosene was available, or that the fuel oil/kerosene cost more than your household could afford, or was it something else? (MARK AS MANY AS APPLY.)	1☐ NONE AVAILABLE 2☐ COST MORE THAN HOUSEHOLD COULD AFFORD 5☐ OTHER (SPECIFY): ____________	*1272*

1307-1308:13

IF HOUSEHOLD USES AND PAYS FOR ELECTRICITY, GAS (FROM UNDERGROUND PIPES OR LPG) OR FUEL OIL/KEROSENE IN Q. 158, ASK Q. 176 ff. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 186.

HAND RESPONDENT EXHIBIT 176

176. Do any of your household electric, gas, fuel oil or kerosene bills include charges for fuel used for purposes other than for your own living quarters, such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?	1[] YES	1311
	0[] NO -- TAKE BACK EXHIBIT 176, SKIP TO Q. 182	

IF "YES," ASK:

177. Which fuel bills include charges for fuel used for purposes other than your own living quarters? (CHECK AS MANY AS APPLY.)	[] ELECTRICITY	1312
	[] GAS FROM UNDERGROUND PIPES	1313
	[] GAS, LPG (BOTTLED OR TANK GAS)	1314
	[] FUEL OIL OR KEROSENE	1315

TURN TO EXHIBIT 178-181

IF "ELECTRICITY" ON Q. 177, ASK:

178. About how much of your household's electricity bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?	0[] VERY LITTLE (LESS THAN 5%)	
	1[] 1/4 (5 - 33%)	
	2[] 1/2 (34 - 66%)	1316
	3[] 3/4 (67 - 95%)	

IF "GAS FROM UNDERGROUND PIPES" ON Q. 177, ASK:

179. About how much of your household's gas bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?.	0[] VERY LITTLE (LESS THAN 5%)	
	1[] 1/4 (5 - 33%)	
	2[] 1/2 (34 - 66%)	1317
	3[] 3/4 (67 - 95%)	

IF "GAS, LPG" ON Q. 177, ASK:

180. About how much of your household's LPG bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?	0[] VERY LITTLE (LESS THAN 5%)	
	1[] 1/4 (5 - 33%)	
	2[] 1/2 (34 - 66%)	1318
	3[] 3/4 (67 - 95%)	

IF "FUEL OIL OR KEROSENE" ON Q. 177, ASK:

181. About how much of your household's fuel oil/kerosene bill is used for non-household uses such as farm buildings or machinery, the house or apartment of another household, a business or office, or anything else?	0[] VERY LITTLE (LESS THAN 5%)	
	1[] 1/4 (5 - 33%)	
	2[] 1/2 (34 - 66%)	1319
	3[] 3/4 (67 - 95%)	

TAKE BACK EXHIBIT 178-181

CONTINUE IF ANY ELECTRIC, GAS (FROM UNDERGROUND PIPES OR LPG) OR FUEL OIL OR KEROSENE BILLS ARE PAID BY HOUSEHOLD. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 186.

182. In addition to the types of fuel you use, we are interested in the quantities used and in the amount that people pay for electricity, gas, fuel oil or kerosene in different parts of the United States.

I have a form that would authorize the companies that supply your household to provide that information to Response Analysis Corporation.

Since this study is being done nationwide, it will give a good picture of the differences in fuel cost and usage all over the country. The information is needed to help establish important national energy policies.

INTERVIEWER: REMOVE THE AUTHORIZATION FORM FROM THE QUESTIONNAIRE AND HAND TO RESPONDENT. EITHER YOU OR RESPONDENT SHOULD FILL IN THE NAME(S) OF COMPANIES. IF MORE THAN ONE LPG OR FUEL OIL OR KEROSENE COMPANY HAS BEEN USED SINCE JANUARY 1, 1980, FILL IN ADDITIONAL COMPANY NAMES ON OTHER SIDE OF FORM. PLEASE PRINT.

1[] AUTHORIZATION FORM SIGNED 1320

0[] AUTHORIZATION FORM NOT SIGNED -- INTERVIEWER, EXPLAIN BELOW:

____

____

IF AUTHORIZATION FORM IS SIGNED, ASK Q. 183 ff. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 186.

183. Do your fuel bills come addressed to (LAST NAME OF SIGNATURE ON AUTHORIZATION FORM), or are they in another name?

1[] SAME AS LAST NAME -- SKIP TO INSTRUCTION FOR Q. 185

2[] ANOTHER NAME 1321

IF BILL IS IN ANOTHER NAME, ASK:

184. What is that name and address?

BILLING NAME: ______________________________

STREET ADDRESS: ______________________________

CITY OR STATE: ______________________________

ZIP CODE: ____________________

IF HOUSEHOLD'S ADDRESS IS A P.O. BOX OR RURAL ROUTE OR OTHER VAGUE ADDRESS AND

IF HOUSEHOLD PAYS FOR ELECTRICITY OR GAS FROM UNDERGROUND PIPES AND

IF HOUSEHOLD SIGNED THE AUTHORIZATION FORM, ASK Q. 185. OTHERWISE, SKIP TO INSTRUCTION FOR Q. 186.

185. Would it be possible for you to give me your customer number at your electric/gas company? This number is on your bills from the company.

ELECTRIC COMPANY -- CUSTOMER NUMBER: ____________________ 1322

[] NOT AVAILABLE/REFUSED

GAS (FROM UNDERGROUND PIPES) -- CUSTOMER NUMBER: ____________________ 1323

[] NOT AVAILABLE/REFUSED

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37

U.S. DEPARTMENT OF ENERGY SURVEY

Authorization Form for
Residential Energy Consumption Survey

I hereby give permission to the company (companies) below to provide information to Response Analysis Corporation for confidential use in connection with their survey for the U.S. Department of Energy.

This authorization covers use of fuels (electricity, natural gas or LPG, fuel oil or kerosene) by my household from January 1, 1980 through April 30, 1982, including:

1) the total amount of fuels used by my household.
2) the total price charged for fuels used by my household.

Companies are authorized to provide this information by monthly periods or by delivery date, whichever applies.

A photocopy of this authorization may be accepted with the same authority as the original.

Signature: ______________________________
Date: ______________________________

PLEASE PRINT

YOUR NAME
ADDRESS APT. NO.
CITY OR POST OFFICE STATE ZIP CODE
TELEPHONE
AREA CODE:__________ NUMBER:______________________

PLEASE COMPLETE ONE BLOCK BELOW FOR EACH FUEL USED BY YOUR HOUSEHOLD
(IF MORE THAN ONE SUPPLIER OF A PARTICULAR FUEL USE THE OTHER SIDE OF THIS SHEET)

ELECTRICITY →

PRINT FULL NAME OF ELECTRIC COMPANY
LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE
TELEPHONE
AREA CODE:__________ NUMBER:______________________

GAS →
from underground pipes
or LPG (bottled or tank gas)

PRINT FULL NAME OF GAS COMPANY
LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE
TELEPHONE
AREA CODE:__________ NUMBER:______________________

FUEL OIL →
or KEROSENE

PRINT FULL NAME OF OIL COMPANY
LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE
TELEPHONE
AREA CODE:__________ NUMBER:______________________

38

GAS →
LPG (bottled or tank gas)

SECOND GAS COMPANY

PRINT FULL NAME OF GAS COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
AREA CODE:__________ NUMBER:__________

THIRD GAS COMPANY

PRINT FULL NAME OF GAS COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
AREA CODE:__________ NUMBER:__________

FUEL OIL →
or KEROSENE

SECOND FUEL OIL/KEROSENE COMPANY

PRINT FULL NAME OF OIL COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
AREA CODE:__________ NUMBER:__________

THIRD FUEL OIL/KEROSENE COMPANY

PRINT FULL NAME OF OIL COMPANY

LOCATION OF COMPANY (IF KNOWN) – CITY AND STATE

TELEPHONE
AREA CODE:__________ NUMBER:__________

IF HOUSEHOLD HAS ONE OR MORE FUELS INCLUDED IN RENT (SEE Q. 158), ASK Q. 186. OTHERWISE, SKIP TO Q. 187.

186. We may be needing some additional information about fuels used in this building (house). May I have the name of the person or company to whom you pay rent?

NAME: ______________________ 1324

TELEPHONE NUMBER: (AREA CODE: ________) ______________

STREET ADDRESS: ______________________

CITY OR TOWN/STATE/ZIP CODE: ______________________

ASK EVERYONE

187. For interview verification purposes, may I have your name, phone number, and mailing address please?

RESPONDENT'S NAME: ______________________

TELEPHONE NUMBER: (AREA CODE ________) ______________

STREET ADDRESS: ______________________

CITY OR TOWN/STATE/ZIP CODE: ______________________

40

188. So far we've been talking about things in your household that affect your energy use. What we need also is a measure of your year-round living space.

With your permission, I would like to measure your home. I can do it from the inside or the outside. With your home, I think it would be most accurate to do it on the (inside/outside).

INCLUDE ONLY THE PART OF THE HOUSE THAT IS ENCLOSED FROM THE WEATHER. ASK THE RESPONDENT ABOUT ANY PECULIARITIES IN SHAPE THAT THE HOME MAY HAVE.

INDICATE WHETHER THE MEASUREMENT IS DONE INSIDE OR OUTSIDE THE HOME.	1[] INSIDE 2[] OUTSIDE	1325
189. Are any of the areas measured not heated during most of the heating season?	1[] YES -- INDICATE UNHEATED AREA(S) ON THE DIAGRAM WITH LINES LIKE THIS (/////). 0[] NO	1326

INTERVIEWER INSTRUCTIONS:

- MARK TYPE OF HOUSING UNIT

  1[] MOBILE HOME OR TRAILER
  2[] ONE-FAMILY HOUSE
    STYLE: 1[] ONE STORY
    2[] TWO STORY
    3[] THREE STORY
    4[] SPLIT LEVEL
    5[] OTHER (SPECIFY): ______________
  1327-1328
  3[] APARTMENT BUILDING OR OTHER STRUCTURE WITH TWO OR MORE UNITS

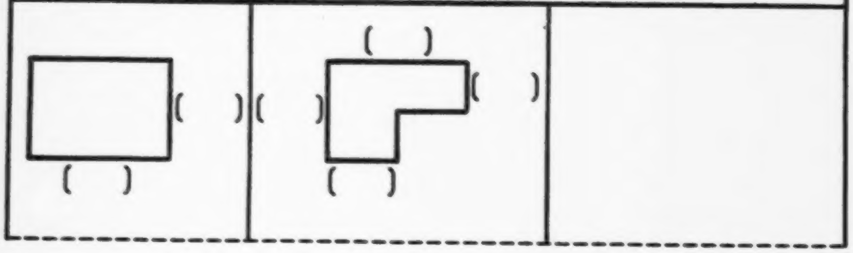
OFFICE USE ONLY			
0			1329-1333
1			1334-1338
2			1339-1343
3			1344-1348

- Note measurement problems, if any, on page 42. Use bottom of page 42 if additional space is needed for sketch or detailed measurements.

RECORD MEASUREMENTS ON DIAGRAM TO NEAREST FOOT

RECTANGULAR SHAPE OR **L-SHAPE** OR **DIAGRAM OTHER SHAPES**

Basement
1[] Full 2[] Half basement

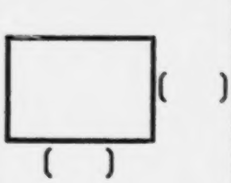
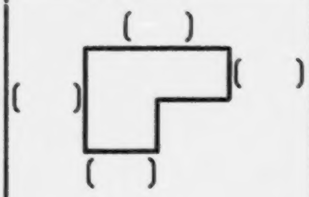


RECORD MEASUREMENTS ON DIAGRAM TO NEAREST FOOT

RECTANGULAR SHAPE OR **L-SHAPE** OR **DIAGRAM OTHER SHAPES**

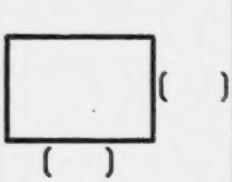
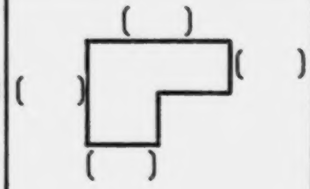
First story

1☐ Full story 2☐ Half story

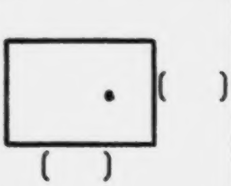
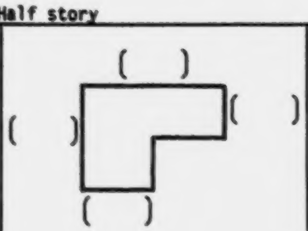
Second story

1☐ Full story 2☐ Half story

Third story

1☐ Full story 2☐ Half story

42

INTERVIEWER REPORT ON MEASUREMENT OF YEAR-ROUND LIVING SPACE

A. What problems, if any, did you have in measuring this house/apartment?

1349-
1360

B. What effect, if any, did these problems have on the accuracy of your measurement?

CONTINUE IF ONE OR MORE VEHICLES LISTED IN Q. 128. OTHERWISE, MAKE ENTRIES IN INTERVIEWER OBSERVATION BOX AND AT BOTTOM OF PAGE TO COMPLETE INTERVIEW.

1☐ ONE OR MORE VEHICLES LISTED IN Q. 128 -- ASK Q. 190 *1411*
0☐ NO VEHICLES LISTED IN Q. 128 -- MAKE ENTRIES AT BOTTOM OF PAGE TO COMPLETE INTERVIEW

190. Earlier you mentioned that your household has ______ vehicle(s). Could we look at the odometer(s) now to see how many miles the (vehicle has/vehicles have) been driven?

IF ONE OR MORE VEHICLES IS NOT AVAILABLE, ASK:

191. Just approximately, how many miles has (each one) been driven since it was manufactured?

	VEHICLE NUMBER			
	1	2	3	4
VEHICLE MAKE (FROM Q. 130)	______	______	______	______
MODEL YEAR (FROM Q. 131)	19 ____	19 ____	19 ____	19 ____
ODOMETER READING	______	______	______	______
VEHICLE NOT AT HOME	☐	☐	☐	☐
ESTIMATED MILES DRIVEN	______	______	______	______
	1412-1417	*1419-1424*	*1426-1431*	*1433-1438*
	1418	*1425*	*1432*	*1439*

INTERVIEWER OBSERVATION:

192. COLOR OF EXTERIOR OF HOME OR BUILDING: *1440*

1☐ LIGHT *2*☐ MEDIUM *3*☐ DARK *5*☐ OTHER (SPECIFY): ______________

193. IS ROOF SLANTED (PITCHED) OR FLAT?

1☐ SLANTED (PITCHED) -- MARK COLOR *2*☐ FLAT *1441*

ROOF COLOR: *1*☐ LIGHT *2*☐ MEDIUM *3*☐ DARK *1442*
5☐ OTHER (SPECIFY): ______________

194. FOR HOUSING UNITS IN BUILDINGS WITH 2 OR MORE UNITS -- SAMPLE UNIT IS LOCATED ON:

1☐ BASEMENT LEVEL *2*☐ FIRST FLOOR *3*☐ SECOND FLOOR OR HIGHER *1443*
5☐ OTHER (SPECIFY): ______________________

Thank you very much for your help.

TIME INTERVIEW COMPLETED: __________ LENGTH OF INTERVIEW: __________ MINUTES *1444-1446*

INTERVIEWER'S SIGNATURE: ______________________ DATE: ______________ *1447-1450*

U.S. GOVERNMENT PRINTING OFFICE [illegible]

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Appendix D (Continued)

U.S. DEPARTMENT OF ENERGY SURVEY

Conducted by
RESPONSE ANALYSIS CORPORATION
P.O. Box 158, Princeton, New Jersey 08540

Mandatory under Public Law 93-275 and 94-385

OMB No. 038-R0457
EIA-457E F2153-1

1980-81
FIRST YEAR DATA

HOUSEHOLD:

If the customer account number is not shown, please enter it. It will be helpful when we request next year's information about this household.

If you have any questions please call collect to Ms. Luci Rasum at (609) 921-3333.

Customer Account
Number for Household: ______________________

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

ELECTRICITY USAGE FROM MARCH 1, 1980 TO THE PRESENT

Time Period	Consumption Period		Number of Kwhr Used	(Circle One) Kwhr are: A - Actual E - Estimated R - Read by Customer	Total Dollar* Amount
	Beginning Date	Ending Date			
1				A E R	
2				A E R	
3				A E R	
4				A E R	
5				A E R	
6				A E R	
7				A E R	
8				A E R	
9				A E R	
10				A E R	
11				A E R	
12				A E R	
13				A E R	
14				A E R	
15				A E R	
16				A E R	
17				A E R	
18				A E R	

*Please include state and local taxes. Exclude merchandise, repair, and service charges. If the household is on the budget plan, do not provide the budgeted bill; provide instead the dollar amount that is the cost of the actual consumption in the period.

Form completed by: ______________________ ______________________ __________
(Name) (Telephone Number) (Date)

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Appendix D (Continued)

U.S. DEPARTMENT OF ENERGY SURVEY

Conducted by
RESPONSE ANALYSIS CORPORATION
P.O. Box 158, Princeton, New Jersey 08540
Mandatory under Public Law 93-275 and 94-385

OMB No. 038-R0457
EIA-457F F2154-1

1980-81
FIRST YEAR DATA

HOUSEHOLD:

If the customer account number is not shown, please enter it. It will be helpful when we request next year's information about this household.

If you have any questions please call collect to Ms. Luci Raaum at (609) 921-3333.

Customer Account
Number for Household: ______________________

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

UTILITY GAS USAGE FROM MARCH 1, 1980 TO THE PRESENT

Time Period	Consumption Period		Quantity Used	(Circle One) Quantities are: A - Actual E - Estimated R - Read by Customer	Total Dollar* Amount
	Beginning Date	Ending Date			
1				A E R	
2				A E R	
3				A E R	
4				A E R	
5				A E R	
6				A E R	
7				A E R	
8				A E R	
9				A E R	
10				A E R	
11				A E R	
12				A E R	
13				A E R	
14				A E R	
15				A E R	
16				A E R	
17				A E R	
18				A E R	

*The quantity used is expressed in terms of: (Mark one)

☐ Therms
☐ Cubic Feet
☐ Hundreds of Cubic Feet (CCF)
☐ Thousands of Cubic Feet (MCF)
☐ Other (Please specify): ______________________

**Please include state and local taxes. Exclude merchandise, repairs, and service charges. If the household is on the budget plan, do not provide the budgeted bill; provide instead the dollar amount that is the cost of the actual consumption in the period.

Form completed by ______________________ (Name) ______________________ (Telephone Number) ______________________ (Date)

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OMB No. 038-R0457
EIA-457G F2151-1
FIRST YEAR DATA

U.S. DEPARTMENT OF ENERGY

1980-81 RESIDENTIAL ENERGY CONSUMPTION SURVEY

Conducted by
RESPONSE ANALYSIS CORPORATION
Research Park, Route 206
P. O. Box 158
Princeton, New Jersey 08540

FUEL OIL OR KEROSENE

HOUSEHOLD

This research is being conducted by Response Analysis Corporation under U.S. Department of Energy Contract Number DE-AC01-EI10085. This survey is mandatory as authorized by the Federal Energy Administration Act of 1974 (Public Law 93-275) as amended by the Energy Conservation and Production Act (Public Law 94-385).

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

Appendix D (Continued)

2

1980-81
FIRST YEAR DATA

HOUSEHOLD:

If you have any questions, please call collect to Luci Raaum at (609) 921-3333.

FUEL OIL AND KEROSENE USAGE

Please provide information on all deliveries to this household from March 1, 1980 to the present. If information is available only for a shorter period, just report deliveries for that shorter period.

Del. #	Column 1 Date of Delivery	Column 2 Fuel Sold Was: Fuel oil #1 (1) Fuel oil #2 (2) Kerosene (K) Other (O) (Circle one)	Column 3 Gallons Delivered	Column 4 Price per Gallon	Column 5 Total Dollar Amount*	Column 6 Was tank completely filled? Yes No Don't Know (DK) (Circle one)
1		1 2 K O				YES NO DK
2		1 2 K O				YES NO DK
3		1 2 K O				YES NO DK
4		1 2 K O				YES NO DK
5		1 2 K O				YES NO DK
6		1 2 K O				YES NO DK
7		1 2 K O				YES NO DK
8		1 2 K O				YES NO DK
9		1 2 K O				YES NO DK
10		1 2 K O				YES NO DK
11		1 2 K O				YES NO DK
12		1 2 K O				YES NO DK
13		1 2 K O				YES NO DK
14		1 2 K O				YES NO DK
15		1 2 K O				YES NO DK
16		1 2 K O				YES NO DK
17		1 2 K O				YES NO DK
18		1 2 K O				YES NO DK

PLEASE CONTINUE ON PAGE 4 IF NECESSARY.

*Please include state and local sales taxes, where applicable. Exclude merchandise, repairs, or service charges.

FUEL OIL AND KEROSENE

1. If "Other" has been circled for type of fuel in Column 2 (page 2 or page 4), please specify what fuel was sold: ________ ☐ NOT APPLICABLE

2. What is the capacity of this household's storage tank? CAPACITY: ________ GALLONS

3. Was this household your customer as of March 1, 1980?

☐ YES ☐ NO

IF "NO," approximately when did this household become a customer of your company?

APPROXIMATE DATE: ________

☐ DON'T KNOW
☐ NEVER A CUSTOMER

4. Is this household presently your customer?

☐ YES ☐ NO

IF "NO," approximately when did this household stop being a customer of your company?

APPROXIMATE DATE: ________

☐ DON'T KNOW
☐ NEVER A CUSTOMER

5. The information presented here is from:

☐ COMPANY RECORDS
☐ AN ESTIMATE MADE BY A COMPANY REPRESENTATIVE
☐ INFORMATION SECURED FROM THE CUSTOMER

6. This information has been supplied by:

________ (Name) ________ (Company) ________ (Telephone) ________ (Date)

4

FUEL OIL AND KEROSENE

Del. #	Column 1 Date of Delivery	Column 2 Fuel Sold Was: Fuel oil #1 (1) Fuel oil #2 (2) Kerosene (K) Other (O) (Circle one)	Column 3 Gallons Delivered	Column 4 Price per Gallon	Column 5 Total Dollar Amount*	Column 6 Was tank completely filled? Yes No Don't Know (DK) (Circle one)
19		1 2 K O				YES NO DK
20		1 2 K O				YES NO DK
21		1 2 K O				YES NO DK
22		1 2 K O				YES NO DK
23		1 2 K O				YES NO DK
24		1 2 K O				YES NO DK
25		1 2 K O				YES NO DK
26		1 2 K O				YES NO DK
27		1 2 K O				YES NO DK
28		1 2 K O				YES NO DK
29		1 2 K O				YES NO DK
30		1 2 K O				YES NO DK

*Please include state and local sales taxes, where applicable. Exclude merchandise, repairs, or service charges.

PLEASE USE THIS SPACE FOR ANY ADDITIONAL NOTES THAT YOU WISH TO MAKE TO EXPLAIN ENTRIES ON THIS FORM.

PLEASE CHECK THAT THE QUESTIONS ON PAGE THREE HAVE BEEN ANSWERED.

OMB 038-R0457
EIA-457H F2152-1
FIRST YEAR DATA

U.S. DEPARTMENT OF ENERGY

1980-1981 RESIDENTIAL ENERGY CONSUMPTION SURVEY

Conducted by
RESPONSE ANALYSIS CORPORATION
Research Park, Route 206
P. O. Box 158
Princeton, New Jersey 08540

LIQUEFIED PETROLEUM GAS (LPG)

HOUSEHOLD

This research is being conducted by Response Analysis Corporation under U.S. Department of Energy Contract Number DE-AC01-EI10085. This survey is mandatory as authorized by the Federal Energy Administration Act of 1974 (Public Law 93-275), as amended by the Energy Conservation and Production Act (Public Law 94-385).

Information about specific households will be kept strictly confidential. The data will be summarized within large groupings for statistical purposes.

Appendix D (Continued)

2

1980-81
FIRST YEAR DATA

HOUSEHOLD:

If you have any questions, please call collect to Luci Rasum at (609) 921-3333.

LIQUEFIED PETROLEUM GAS USAGE

Please provide information on all deliveries to this building from March 1, 1980 to the present. If information is available only for a shorter period, just report deliveries for that shorter period.

Del. #	Column 1 Date of Delivery	Column 2 Fuel Sold Was: Propane P Butane B Other O (Circle one)	Column 3 Quantity Delivered	Column 4 Price per Unit	Column 5 Total Dollar Amount*	Column 6 Was tank/cylinder completely filled? Yes No Don't Know (DK) (Circle one)
1		P B O				YES NO DK
2		P B O				YES NO DK
3		P B O				YES NO DK
4		P B O				YES NO DK
5		P B O				YES NO DK
6		P B O				YES NO DK
7		P B O				YES NO DK
8		P B O				YES NO DK
9		P B O				YES NO DK
10		P B O				YES NO DK
11		P B O				YES NO DK
12		P B O				YES NO DK
13		P B O				YES NO DK
14		P B O				YES NO DK
15		P B O				YES NO DK
16		P B O				YES NO DK
17		P B O				YES NO DK
18		P B O				YES NO DK
PLEASE CONTINUE ON PAGE 4 IF NECESSARY.						

*Please include state and local taxes, where applicable. Exclude merchandise, repairs, or service charges.

LIQUEFIED PETROLEUM GAS (LPG)

1. If "Other" has been circled for type of fuel in Column 2 (page 2 or page 4), please specify what fuel was sold? ______________________

   ☐ NOT APPLICABLE

2. Please mark unit of measure for deliveries reported on page 2.

   ☐ POUNDS
   ☐ GALLONS
   ☐ CUBIC FEET
   ☐ CUBIC METERS
   ☐ DECITHERMS
   ☐ OTHER (Please specify): ______________________

3. What is the capacity of this building's storage tank(s)?

   Capacity is ______________________ and is measured in number of:

   ☐ POUNDS
   ☐ GALLONS
   ☐ OTHER UNIT (Please specify): ______________________

4. Were you supplying this building on March 1, 1980?

   ☐ YES ☐ NO

   IF "NO," approximately when did you start supplying the building?

   APPROXIMATE DATE: ______________________

   ☐ DON'T KNOW
   ☐ NEVER A CUSTOMER

5. Do you supply this building now?

   ☐ YES ☐ NO

   IF "NO," approximately when did you stop supplying this building?

   APPROXIMATE DATE: ______________________

   ☐ DON'T KNOW
   ☐ NEVER A CUSTOMER

6. The information reported here is from:

   ☐ COMPANY RECORDS
   ☐ AN ESTIMATE MADE BY A COMPANY REPRESENTATIVE
   ☐ INFORMATION SECURED FROM THE CUSTOMER

7. This information has been supplied by:

______________________ ______________________ ______________________ ______________________

(Name) (Company) (Telephone) (Date)

4

LIQUEFIED PETROLEUM GAS (LPG)

Del. #	Column 1 Date of Delivery	Column 2 Fuel Sold Was: Propane P Butane B Other O (Circle one)	Column 3 Quantity Delivered	Column 4 Price per Unit	Column 5 Total Dollar Amount*	Column 6 Was tank/cylinder completely filled? Yes No Don't Know (DK) (Circle one)
19		P B O				YES NO DK
20		P B O				YES NO DK
21		P B O				YES NO DK
22		P B O				YES NO DK
23		P B O				YES NO DK
24		P B O				YES NO DK
25		P B O				YES NO DK
26		P B O				YES NO DK
27		P B O				YES NO DK
28		P B O				YES NO DK
29		P B O				YES NO DK
30		P B O				YES NO DK

*Please include state and local sales taxes, where applicable. Exclude merchandise, repairs, or service charges.

PLEASE USE THIS SPACE FOR ANY ADDITIONAL NOTES THAT YOU WISH TO MAKE TO EXPLAIN ENTRIES ON THIS FORM.

PLEASE CHECK THAT THE QUESTIONS ON PAGE THREE HAVE BEEN ANSWERED.

Appendix E

United States Weather Zone Map

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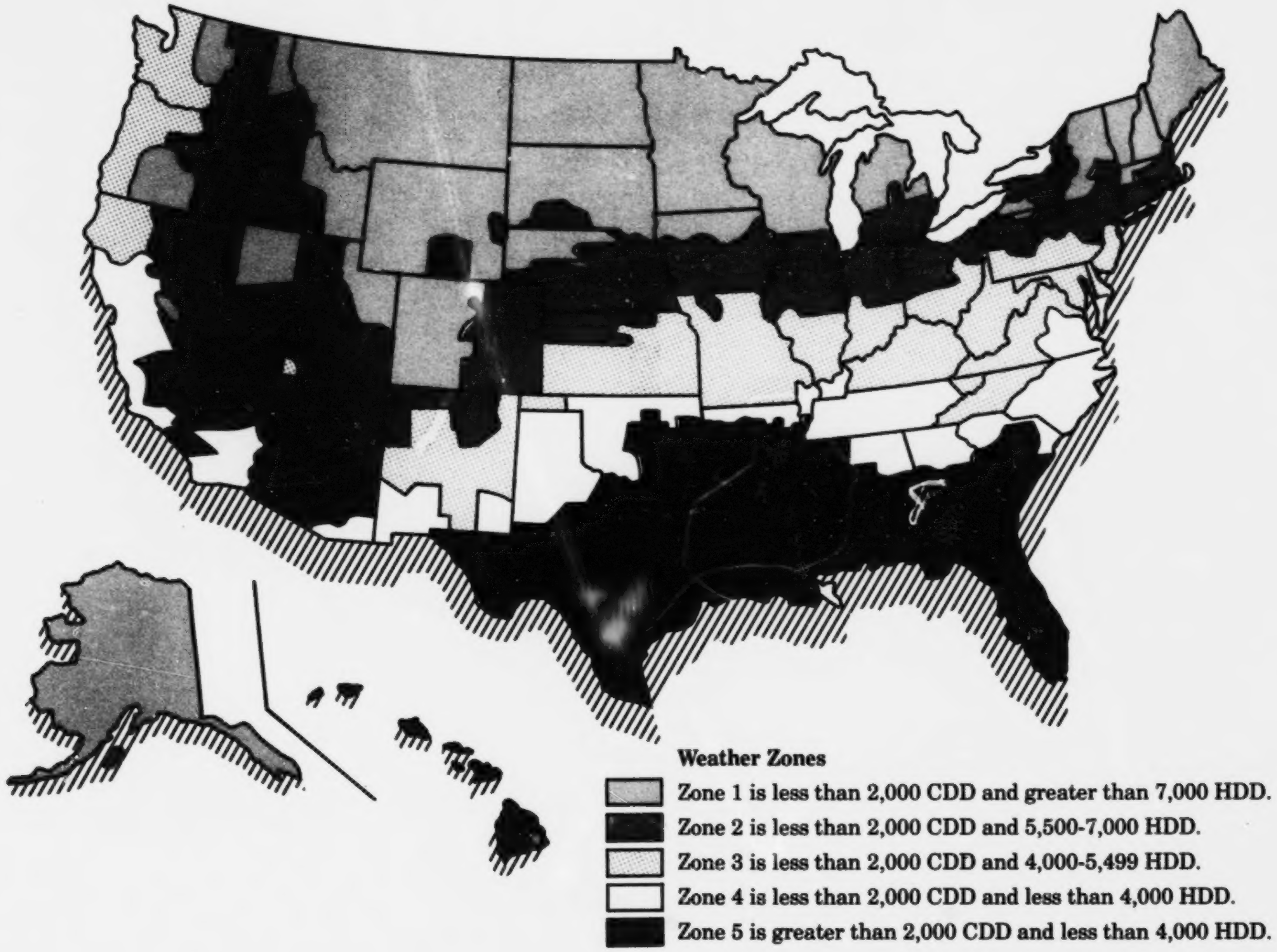
United States Weather Zone Map
of Heating Degree-Days (HDD) and Cooling Degree-Days (CDD)


Weather Zones
▨ Zone 1 is less than 2,000 CDD and greater than 7,000 HDD.
▨ Zone 2 is less than 2,000 CDD and 5,500-7,000 HDD.
▨ Zone 3 is less than 2,000 CDD and 4,000-5,499 HDD.
☐ Zone 4 is less than 2,000 CDD and less than 4,000 HDD.
■ Zone 5 is greater than 2,000 CDD and less than 4,000 HDD.

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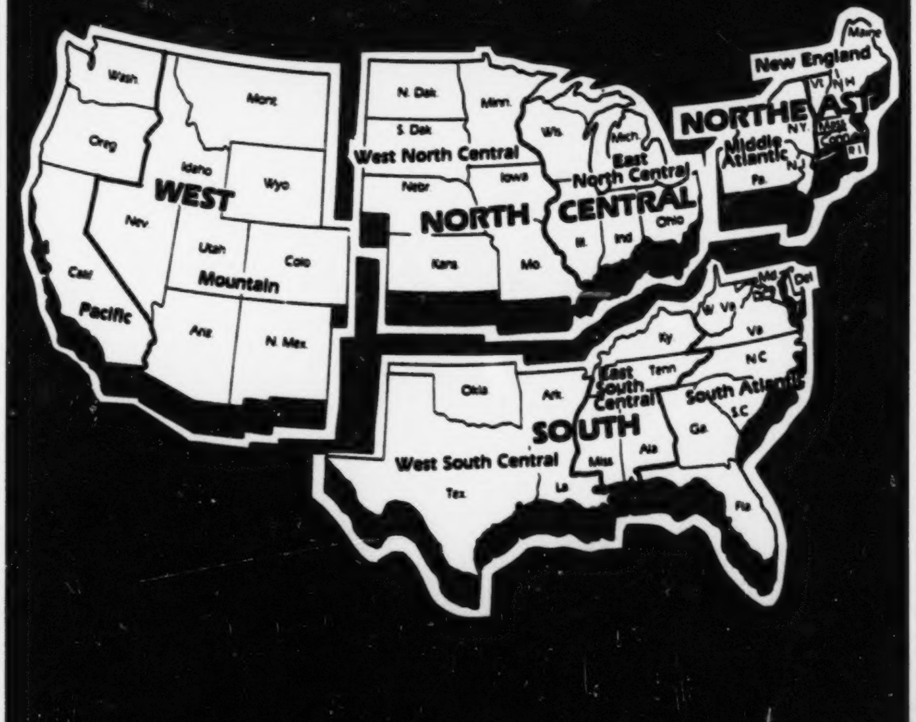
Appendix F

United States Census Regions and Divisions



WEST
Pacific
Mountain
Wash.
Oreg.
Calif.
Idaho
Mont.
Wyo.
Nev.
Utah
Colo.
Ariz.
N. Mex.
NORTH CENTRAL
West North Central
N. Dak.
S. Dak.
Minn.
Nebr.
Iowa
Kans.
Mo.
East North Central
Wis.
Mich.
Ill.
Ind.
Ohio
NORTHEAST
New England
Maine
Vt.
N.H.
Mass.
Conn.
R.I.
Middle Atlantic
N.Y.
N.J.
Pa.
SOUTH
West South Central
Okla.
Ark.
Tex.
La.
East South Central
Ky.
Tenn.
Miss.
Ala.
South Atlantic
W. Va.
Md.
Del.
D.C.
Va.
NC
SC
Ga.
Fla.

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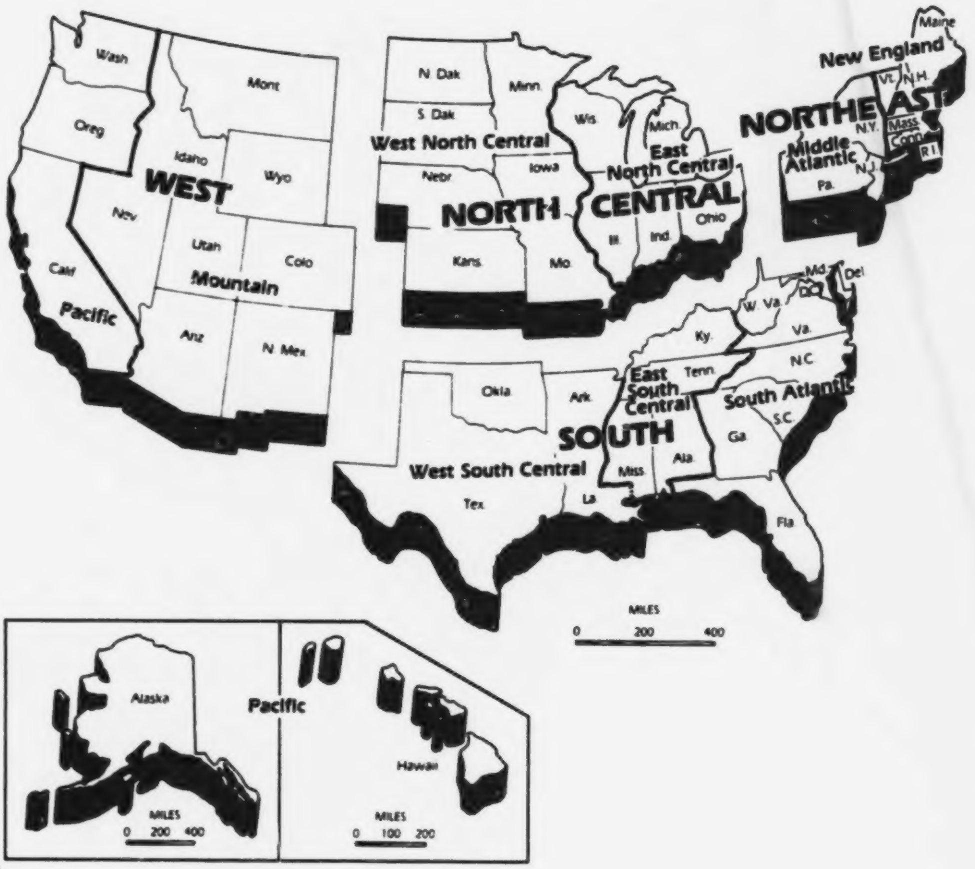
Appendix F

U.S. Census Regions and Divisions



WEST
Pacific
Mountain
Wash
Oreg
Calif
Idaho
Nev
Mont
Wyo
Utah
Colo
Ariz
N Mex
NORTH CENTRAL
West North Central
East North Central
N Dak
S Dak
Minn
Nebr
Iowa
Kans
Mo
Wis
Mich
Ill
Ind
Ohio
NORTHEAST
New England
Middle Atlantic
Maine
Vt
N.H.
Mass
Conn
R.I.
N.Y.
N.J.
Pa.
SOUTH
West South Central
East South Central
South Atlantic
Okla
Ark
Tex
La
Ky
Tenn
Miss
Ala
W. Va
Md
Del
D.C.
Va
N.C.
S.C.
Ga
Fla
MILES
0
200
400
Alaska
Pacific
Hawaii
MILES
0
200
400
MILES
0
100
200

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Appendix G

Residential Energy Consumption Data Items, 1978-1981

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Appendix G

1978 to 1981

This section gives a thumbnail sketch of the first four Residential Energy Consumption Surveys (RECS)[1] and provides an index of data items included in each survey.

Residential Energy Consumption Surveys

Survey	Survey Date	Number of Households in Sample
National Interim Energy Consumption Survey (NIECS)	Nov. 1978	4,081
Household Screener Survey (Screener)	Nov. 1979	4,033
Residential Energy Consumption Survey (RECS-1)	Nov. 1980	6,051
Residential Energy Consumption Survey (RECS-2)	Nov. 1981	6,269[a]

[a] The RECS-2 includes a supplemental sample of low-income households at the request of the Social Security Administration.

Reports on the first two surveys contained "Residential Energy Consumption Survey" in their titles since both surveys included the major components of the RECS—a household interview and a follow-up survey of the household's fuel suppliers. The main distinction between the earlier and later surveys is in their sample designs.

The first two surveys sampled clusters of ten households (from the same block or buildings) scattered throughout 103 Primary Sampling Units (PSU's). The RECS 1 and RECS 2 sampled clusters of about four households in 131 PSU's. In addition, the RECS PSU's were selected for the Department of Energy according to a design that used the main heating fuel in the selection process. The survey was designed to produce estimates with a minimum sampling variation within each of the ten Federal regions and nine Census Divisions (See "Sample Design," Appendix A, for more information).

Index of RECS Data Items

This index, showing what data items are included in each of the four RECS surveys, serves as a quick overview of what data are available from the RECS surveys. The index shows what data are available for a trend analysis and indicates which survey included a specific data item of interest. A review of the questionnaire for a particular study will give the reader more precise information on questions wording and response categories used.

---

[1] Previous studies similar in design and scope conducted in 1973 and 1975 by the Washington Center for Metropolitan Studies (WCMS) and Response Analysis Corporation are available in microdata file in machine/readable form from the National Technical Information Service (NTIS), Order No. PB-272448, $125; a codebook is also available (PB-272449).

Appendix G (Continued)

The index shows, for example, that: questions on temperature maintained in the house were first included with the 1981 RECS; that the value of the house was included in the 1978 NIECS, but not in later surveys; that questions on wood usage were first included in the 1980 RECS and were scaled down for the 1981 RECS; that the cost of energy retrofit measures were first included in the 1979 Screener; and that the square footage of the housing unit was self-reported in the 1978 NIECS and measured by the interviewer beginning with the 1980 RECS.

Table G1. Energy Consumption From Fuel Supplier Records by Individual Survey

Fuel Type	NIECS[a] 1978	Screener[b] 1979	RECS[c] 1980	RECS[c] 1981
Electricity				
Consumption per Billing Period (kilowatt-hours)	X	[d]X	X	X
Expenditures per Billing Period (dollars)	X	[d]X	X	X
Natural Gas				
Consumption per Billing Period (cubic feet/therms)	X	[d]X	X	X
Expenditures per Billing Period (dollars)	X	[d]X	X	X
Fuel Oil/Kerosene				
Gallons per Delivery	X	[d]X	X	X
Dollars Paid per Delivery	X	[d]X	X	X
Liquified Petroleum Gas (LPG)				
Gallons per Delivery	X	[d]X	X	X
Dollars Paid per Delivery	X	[d]X	X	X

[a] National Interim Energy Consumption Survey.

[b] Household Screener Survey which was designed to "screen" households for participation in the Household Transportation Panel.

[c] Residential Energy Consumption Surveys (RECS) which used a sampling frame of 131 Primary Sampling Units especially designed for surveys of residential energy consumption.

[d] EIA is not planning to make these data available to the public. Annual consumption and expenditures estimated from these data, however, will be included on the public use data tape.

Note: An "X" in the column means the survey included the data item.

Note: These data constitute the basis for estimating annual consumption and expenditures, converting to Btu equivalents, and estimating marginal prices for electricity and natural gas.

Appendix G (Continued)

Table G2. Weather Data (Cooling/Heating Degree-Days for NOAA Divisions Containing Households) by Individual Survey

Annual Degree-Days	NIECS 1978	Screener 1979	RECS 1980	RECS 1981
40-Year Average Modified for Survey Consumption Period	X	—	—	—
Standard Year for Survey Consumption Period (April 1 through March 31 of following year)	—	X	[a]X	[a]X
AIA Weather Zones (40-Year Average)	X	X	X	X
Billing Period Degree-Days	X	—	X	X

[a] Will include degree-days for bases other than 65.

Note: An "X" in the column means the survey included the data item.

Table G3. End Uses of Energy by Fuel Type

End Uses of Energy	Electricity	Natural Gas	LPG	Gas Unspecified	Fuel Oil	Kerosene	Fuel Oil/ Kerosene	Coal/ Coke	Wood	Solar Collectors
Space-Heating										
Main Source	X	X	X	--	X	X	--	X	X	X
Secondary Source	X	X	X	--	X	X	--	X	X	X
Used at All	X	X	X	--	--	--	X	--	--	--
Space-Cooling										
Central System	X	[a]X	[a]X	X	--	--	--	--	--	--
Used at All	X	X	X	--	--	--	--	--	--	--
Water-Heating										
Most-Used Fuel	X	X	X	--	X	X	--	X	X	X
Secondary Source[a]	X	X	X	--	X	X	--	X	X	X
Used at All	X	X	X	--	--	--	X	--	--	--
Cooking										
Most-Used Fuel	X	X	X	--	X	X	--	X	X	X
Used at All	X	X	X	--	--	--	[a]X	--	--	--
Fuel for Ovens	X	--	--	X	--	--	--	--	--	--
Refrigeration	X	--	--	X	--	--	--	--	--	--
Freezing	X	--	--	X	--	--	--	--	--	--
Heating Swimming Pool[b]	X	X	X	--	X	X	--	X	X	X
Nonhousehold Uses of Fuel[b]	X	X	X	--	--	--	X	--	--	--
Appliances	X	--	--	X	--	--	--	--	--	--

---

[a] Newly added in 1981.

[b] Newly added in 1980.

Note: An "X" in the column means the survey included the data item.

Appendix G (Continued)

Table G4. Equipment and Appliance Type by Individual Survey

Equipment and Appliances	NIECS 1978	Screener 1979	RECS 1980	RECS 1981
Type of Main Heating Equipment.......	X	—	X	X
Fuel Used..........................	X	X	X	X
Presence of Heating Control..........	X	—	X	X
Type of Control....................	X	—	—	—
Temperature Settings...............	—	—	—	X
Type of Secondary Heating Equipment..	X	—	X	X
Fuel Used..........................	X	X	X	X
Type of Air Conditioning Equipment...	X	X	X	X
Fuel Used..........................	X	X	X	X
Number of Wall Units...............	X	—	X	—
Number of Rooms That Can Be Cooled............................	X	X	X	X
Use of Air Conditioning............	—	—	—	X
Swimming Pool........................	—	—	X	X
Heater.............................	—	—	X	X
Fuel Used..........................	—	—	X	X
Number of Refrigerators..............	X	—	X	X
Fuel Used..........................	X	—	X	X
Frost-Free.........................	X	—	X	X
Other Features.....................	X	—	—	—
Number of Separate Freezers..........	—	—	X	X
Fuel Used..........................	—	—	X	X
Frost-Free.........................	—	—	X	X
Number of Ovens......................	X	—	X	X
Fuel Used..........................	X	—	X	X
Self-Cleaning Features.............	X	—	X	—
Other Appliances[a]....................	12	—	15	15
Water Heater is Part of Furnace......	X	—	—	—

[a] Appliances include microwave oven, electric range, gas range, outdoor gas grill, automatic clothes-washer, wringer clothes-washer, dishwasher, electric clothes-dryer, gas clothes-dryer, outdoor gas light, small electric appliances such as toaster/oven or fry pan (NIECS), separate freezer (NIECS), dehumidifier (RECS), humidifier (RECS), evaporative cooler (RECS), television--black/white, color (RECS).

Note: An "X" in the column means the survey included the data item.

Table G5. Structural Characteristics by Individual Survey

Structural Characteristics	NIECS 1978	Screener 1979	RECS 1980	RECS 1981
Housing Type (e.g., single-family)...	X	X	X	X
Year-Round or Seasonal...............	X	X	X	X
Year House Built.....................	X	X	X	X
Material on Outside Walls............	—	—	X	X
Number of Outside Doors..............	X	—	X	X
Basement/Crawl Space.................	—	—	X	X
Heated or Unheated.................	—	—	X	X
Number of Windows....................	X	—	X	X
Size...............................	—	—	X	—
Type (e.g., double-hung)...........	X	—	—	—
Number of Rooms......................	X	X	X	X
Number of Bathrooms..................	X	—	X	X
Number of Floors.....................	X	—	X	—
Size of Largest Room.................	X	X	X	—
Square Footage				
As Reported by Respondent (living space)......................	X	—	—	—
As Measured by Interviewer (areas enclosed from the weather).........	—	—	X	X
Single-family Housing Units				
Wall Insulation....................	[a,b]X	—	X	[a]X
Attic Insulation...................	[a,b]X	—	X	[a]X
Extent...........................	—	—	X	[a]X
Type.............................	[a,b]X	—	X	[a]X
Number of Inches.................	[a,b]X	—	X	[a]X
Floor insulation...................				
Extent...........................	—	—	X	[a]X
Type.............................	—	—	X	—
Number of Inches.................	—	—	X	—
Number of Storm Doors................	X	—	X	X
Number of Storm Windows..............	X	—	X	X
Color of Outside Walls...............	—	—	X	—
Roof is Slanted or Pitched...........	—	—	X	—

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[a] Mobile homes also included.

[b] Buildings of 2-4 units also included. Insulation questions were not asked of respondents in buildings of 5 or more units.

Note: An "X" in the column means the survey included the data item.

Appendix G (Continued)

Table G6. Conservation Activities (Two Years Prior to the Survey) by Individual Survey

Type of Activity	NIECS 1978	Screener 1979	RECS 1980	RECS 1981
Attic Insulation Added	X	X	X	X
Type	—	—	X	X
Cost	—	X	X	X
Wall Insulation Added	X	X	X	X
Type	—	—	X	X
Cost	—	X	X	X
Floor Insulation Added	X	—	X	X
Type	—	—	X	X
Cost	—	—	X	X
Storm Doors Added	X	[a]X	X	X
Number Added	—	—	X	X
Cost	—	[a]X	X	X
Storm Windows Added	X	[a]X	X	X
Number Added	—	—	X	X
Size of Windows Added	—	—	X	—
Cost	—	[a]X	X	X
Closeable Shutters Added	X	—	[b]X	[b]X
Plastic Sheeting Added	X	—	[b]X	[b]X
Weatherstripping Added	X	—	X	X
Caulking Added	X	—	X	X
Clock Thermostat Installed	X	—	X	X
Insulation Added Around:				
Hot Water Pipes	X	—	X	X
Water Heater	X	—	X	X
Heating Ducts	—	—	X	X
Adjustment to Thermostat Control	—	—	X	X
Additional Thermostats	—	—	X	X
Smaller Nozzle on Burner	—	—	X	X
Flame-Retention Burner Installed	—	—	X	X
Automatic Flue Door Installed	—	—	X	X
Electrical/Mechanical Ignition	—	—	X	X
Meter Displaying Cost of Energy	—	—	X	X
Heat Pump Installed	X	—	X	X
Cost	—	—	X	—
New Water-Heating Equipment	X	—	—	—
New Furnace	X	—	—	—
Wood-Burning Stove Added	—	—	X	X
Cost	—	—	X	—
Visit by Professional Energy Adviser	—	—	X	—
Participation in Weatherization Program	—	—	X	—
Rooms Closed Off	X	—	—	—
Cleaning Main Heating Equipment	—	—	X	—

[a] Windows and doors grouped together.

[b] Closeable shutters and plastic sheeting grouped together.

Note: An "X" in the column means the survey included the data item.

Appendix G (Continued)

Table G7. Data Items by Individual Survey and Year

Data Items	NIECS 1978	Screener 1979	RECS 1980	RECS 1981
Demographic Characteristics				
Community Size	X	X	X	X
Census Region (4)	X	X	X	X
Census Division (9)	—	—	X	X
Year Moved Into Housing Unit	X	X	X	X
Number, Relation, Sex, and Age of Household Members	X	X	X	X
Employment Status of Members Aged 14 and Over	X	X	X	—
Respondent's Marital Status	X	X	X	X
Race	X	X	—	—
Origin	—	—	X	X
Hispanic Descent	—	—	X	X
Respondent and Spouse Education	X	X	X	X
Previous Year's Employment History	—	—	X	X
Family Income for Calendar Year	X	X	X	X
Sources of Family Income	—	—	—	X
Housing Tenure (Own or Rent)	X	X	X	X
Condominium	X	X	X	X
Monthly Rent Payment	X	—	—	X
Food Stamps/Heating Assistance	—	—	—	X
Value of Housing Unit	X	—	—	—
Wood Use Characteristics				
Total Cords Burned	—	—	X	X
Type of Wood (e.g., hardwood)	—	—	X	—
Amount Purchased	—	—	X	—
Price Paid	—	—	X	X
Price Includes Delivery	—	—	X	—
Amount Burned in Type of Equipment	—	—	X	[a]X
Building Characteristics (buildings of 2 or more units)				
Floor Location of Sampling Unit	—	—	X	—
Central or Individual System(s) in Multi-Family Buildings for:				
Heating	X	—	X	X
Air Conditioning	X	—	X	X
Water Heating	X	—	X	X
General Characteristics				
Cars and Trucks Used by the Household[b]	X	X	X	X
Change in Space-Heating Fuel During Past Year	—	X	X	X
Households Served by Same Utility	—	—	X	X
Membership of Utility[c]	—	—	X	X
Commercial Activity in Housing Unit	—	—	X	—
Availability of Gas in Neighborhood	—	—	X	X
Transportation Characteristics				
Number of Vehicles	X	X	X	X
Number of Drivers	X	X	X	X
Vehicle Characteristics				
Type (station wagon, etc.)	X	X	X	X
Make	X	X	X	X
Model Year	X	X	X	X
Model Name	X	X	X	X

Appendix G (Continued)

Table G7. (Continued)

Data Items	NIECS 1978	Screener 1979	RECS 1980	RECS 1981
When Acquired	X	X	—	—
Total Annual Mileage	X	X	—	—
Annual Highway Mileage	X	—	—	—
Used On-The-Job	X	—	—	—
Total Mileage	X	—	—	—
Miles-Per-Gallon				
Highway	X	—	—	—
Local	X	—	—	—
Basis for Miles-Per-Gallon	X	—	—	—
Fuel Used Most Frequently	X	—	X	—
Number of Cylinders	X	—	X	—
Air Conditioning	—	—	X	—
Automatic Transmission	—	—	X	—
Number of Vehicles Disposed of in Past 12 Months	X	X	—	—
Commuting Characteristics (data for both respondent and spouse)				
Miles to Work	—	—	X	—
Mode of Travel to Work	—	—	X	—
Alone/Other	—	—	X	—
Number of Others	—	—	X	—
Amount of Time Spent Commuting	—	—	X	—
Number of Trips between Home and Work	—	—	X	—

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[a] All wood burned by household must be assigned to either the main or secondary heating equipment in those cases where wood was burned in both kinds of equipment.

[b] Data reported separately as part of the RECS Household Transportation Panel.

[c] For households paying directly to the utility, this code will distinguish investor-owned utilities from municipal utilities as indicated by the utility's membership in Edison Electric Institute, American Public Power Association, National Rural Electric Cooperative Association, or American Gas Association.

Note: An "X" in the column means the survey included that data item. A "—" means the item was not included.

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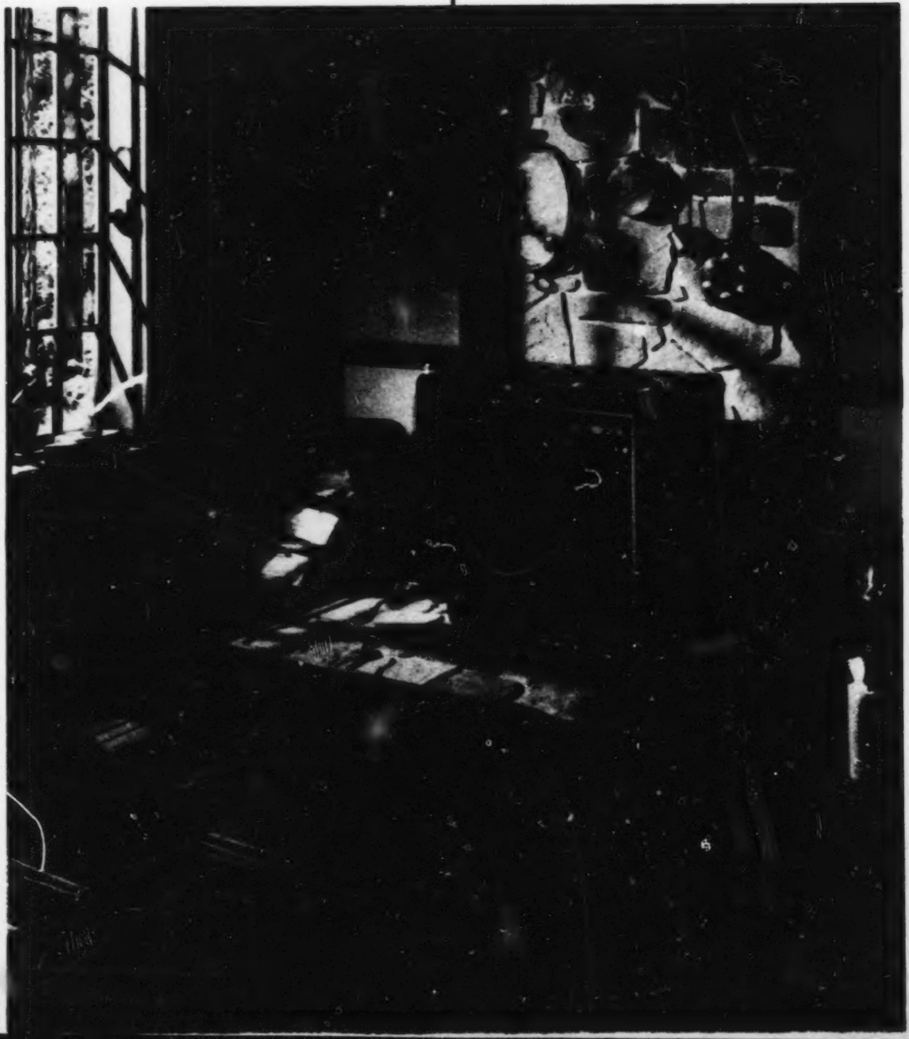
Glossary



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Glossary

AIA Weather Zone. Seven distinct areas designated by the American Institute of Architects (AIA) for the U.S. Departments of Energy and Housing and Urban Development; they are used to classify housing units based on long-term weather conditions. The zones were determined according to the number of heating and cooling degree-days averaged over a number of years as follows:

Zone	Cooling Degree-Days	Heating Degree-Days	Comments
1	Less then 2,000	More than 7,000	
2	Less than 2,000	5,500 to 7,000	
3	Less than 2,000	4,000 to 5,499	
4	Less than 2,000	2,000 to 3,999	No RECS household is in Zone 4 based on the long-term weather data for the household's NOAA Division. Zones 4 and 5 are combined for RECS reports.
5	Less than 2,000	Less than 2,000	
6	More than 2,000	Less than 2,000	Zones 6 and 7 are combined for RECS reports.
7	More than 2,000	2,000 to 3,999	

Air-Conditioning: Cooling of air by a refrigeration unit. This does not include fans, blowers, or evaporative cooling systems which are not connected to a refrigeration unit. Air-conditioning units that are not currently in working condition or are not used, but are in place in the housing unit, are included in this survey.

"Number of rooms that can be air-conditioned" refers to the number of rooms the air-conditioning equipment is capable of cooling when the equipment is used. Question 44 "How many rooms in your house (apartment) are cooled by air-conditioning?" refers to rooms which could be cooled if the air-conditioning equipment were used. There are, therefore, no cases in the data set of a household with air-conditioning equipment which air-conditioned zero rooms.

"All rooms air-conditioned" means that 100 percent of the rooms are air-conditioned. "Some rooms air-conditoned" means that less than 100 percent are air-conditioned.

"Central air-conditioning system" refers to a system that air-conditions a number of rooms in a home. See also "Central system for the building". For a definition of rooms, see "Number of Rooms".

All Electric Home: Uses electricity for space heating, water heating and cooking. Other fuels may be used for supplementary heating or other purposes.

Appliances Used: Appliances possessed and used by the household. Appliances possessed by the household but not used are not counted. Air-conditioning units are an exception. Air-conditioning is counted if present whether or not it is used. See "Air-Conditioning". Appliances loaned to the household for their regular use are included. Appliances temporarily not in working condition but generally used by the household are included only if a repair person has been called. "Swimming pool heater" applies only to swimming pools that are for the exclusive use of the housing unit. Swimming pools in apartment buildings, condominiums, or cooperatives that are for the use of many resident households are not included. "An evaporative cooler (swamp cooler)" is an air-cooling unit that turns air into moist, cool air by saturating the air with water vapor. See also "Refrigerators".

April 1980 Through March 1981: The annual consumption period is a 365-day period beginning as close as possible to April 1, 1980. For natural gas and electricity, the actual beginning date for a household may vary from April 1 in either direction by several weeks depending on that household's billing cycle. For fuel oil and LPG, the beginning date is always April 1 but the amounts represent deliveries received by the household during the 365-day period, not gallons consumed. See "Consumed".

Consumption and expenditures data for the calendar year is of interest to persons who want to match other data that is reported for the calendar year. Estimates for calendar year 1980 have been made for each fuel by the Energy End Use Division. The calendar year estimates were made taking account of the difference in weather for the January-through-March period for 1980 and 1981 and the changes in use of household heating fuel. For example, households that switched from fuel oil to natural gas were assumed to have switched in the summer of 1980 so some of their use of natural gas was replaced with fuel oil to reflect the period of January through March 1980. The aggregate total consumption for calendar year 1980 is shown below:

	Total Btu Consumed (Quadrillion Btu)	
	1980	April 1980 through March 1981
Natural Gas	5.03	4.94
Electricity	2.47	2.46
Fuel Oil/Kerosene	1.62	1.55
LPG	0.38	0.36
Total	9.50	9.32

Availability of Natural Gas in the Neighborhood: Respondents living in single-family units or mobile homes who did not use natural gas answered "yes", "no", or "don't know" to the question, "Is gas from underground pipes available in this neighborbood?" Respondents were not provided with a definition of "available" or "neighborhood", so some variation is expected in what these concepts mean to each respondent.

Basement: is an enclosed space in which a person can walk upright under all or part of the building. A "crawl space" is the space between the ground and the floor of a house. An "enclosed" crawl space is one not accessible from the outside of the house because the walls of the space protect it from the weather. A crawl space "open to the outside" is accessible from outside the house even though it may be covered by a trellis or lathwork, or some kind of brick work that leaves space for circulation of air.

Bathroom: A "complete" bathroom has a flush toilet, a bathtub or shower, and a sink or washbasin with running water. A "half-bath" has a flush toilet or a bathtub or shower but does not have all the facilities for a complete bathroom.

Glossary (Continued)

Billing Period: The time between meter-readings. It does not refer to the time the bill was sent nor when the payment was to have been received. In some cases, the billing period is the same as the billing cycle which corresponds closely (within several days) to meter reading dates. For fuel oil and LPG, the billing period is the number of days between fuel deliveries.

Btu (British Thermal Units): A Btu is the amount of energy required to raise the temperature of one pound of water one degree Fahrenheit at or near 39.2 degrees Fahrenheit and one atmosphere of pressure. One Btu is about equal to the heat given off by a blue-tip match.

Btu conversion factors for this survey are:

Electricity	3,412 Btu/kilowatt-hour
Natural Gas	1,021 Btu/cubic foot
Fuel Oil No. 1	135 Btu/gallon
Kerosene	135 Btu/gallon
Fuel Oil No. 2	138.69 Btu/gallon
LPG (propane)	21,540 Btu/pound
	91,330 Btu/gallon
	2,510 Btu/cubic foot
	88,640 Btu/cubic meter
Wood	20,000,000 Btu/cord

Other conversion factors used include:

1 therm = 100,000 Btu
1 barrel = 42 gallons

Almost all LPG reported by the fuel suppliers was propane. Hence, the LPG conversion factors are those for propane. See "Wood Burned" for discussion of the Btu value of woodfuel.

Built-in Electric Units: Individual resistance electric heating units are permanently installed in the floors, walls, ceilings, or baseboards, and are part of the electrical installation of the building. Electric heating devices that are plugged into an electric socket or outlet are not considered built-in.

Capacity of Fuel Oil/Kerosene Tank(s): Is the capacity of one tank, or the combined capacity of two tanks, used by the household for storing fuel oil or kerosene. Some households (an estimated 0.2 million) reported having three or more tanks; only two tanks were counted for capacity estimates. An estimated 6.2 million households reported using something "other" than a tank such as a container or jug.

Central System for the Building: A central system serving one or more buildings of two or more housing units each that is used for main heating, water-heating, or air-conditioning. A system that is for the respondent's living quarters only is not a central system for the building.

Central Warm-Air Furnace: A central furnace providing warm air through ducts leading to the various rooms. Heat pumps are not included in this category. A "forced-air" furnace is one in which a fan is used to force the air through the ducts. In a "gravity" furnace, air is circulated by gravity. The warm air rises through ducts and the cold air falls through cold air ducts bringing the cold air back to the furnace to be reheated. This completes the circulation cycle.

Condominium Ownership: A type of ownership that enables a person to own an apartment or house in a project of similar units. The owner has his or her own deed and, very likely, has a mortgage on the unit. The owner

Glossary (Continued)

also holds common or joint ownership in all common areas such as hallways, entrances, and elevators. Condominium ownership may apply to single-family houses, row houses, town houses, or apartments.

Conservation Items Added during 1979 or 1980: Energy-saving items added to the housing unit the household now occupies. Items added to a previous place of residence and changes made by previous occupants of the housing unit are not counted. Changes made by a landlord are counted. For respondents interviewed before December 31, 1980, the year 1980 represents an incomplete year. About 37 percent of the interviews were completed between September 1980 and the end of the year.

"Automatic or clock thermostat" is a thermostat that can be set to turn the heating system off and on at certain preset times of day.

"Adjustments to thermostat control (recalibration)" assures that the temperature the thermostat is set for is the actual temperature maintained in your house.

"An additional thermostat (zoning the home)". Adding an additional thermostat regulates the temperature in different parts of the home. For example, the sleeping areas of the home can be kept at a lower temperature than the living areas.

"Smaller nozzle or burner or smaller line on furnace". Adding one of these smaller lines to the oil furnace will cut down on the amount of fuel the furnace burns.

"Flame-retention head burner for furnace (fuel oil)" is a device that controls the pattern of flame in the combustion chamber of a boiler or furnace.

"Automatic flue door (vent damper)" automatically closes the flue when the furnace goes off, preventing heat loss up the chimney.

"Electrical or mechanical furnace ignition system (spark ignition)". This type of ignition added to the furnace means that fuel will ignite from an electrically or mechanically produced spark rather than from a pilot light that burns continuously.

"Insulation around heating ducts" is extra insulation around the heating ducts to reduce heat loss as the hot air travels to different parts of the residence.

"Insulation around hot water pipes" is blanket insulation wrapped around the hot water heater to reduce heat loss. This is in addition to any insulation provided by the manufacturer.

"Meter which displays the cost of energy" is a device to shoe the homeowner how much energy is being used in his home at a given time and/or to add up the cost of energy usage over a specific period of time.

"Closeable shutters, plastic sheets, insulating drapes" are counted if any one of these has been added to any door or window in the housing unit. Shutters that close to provide an insulating effect are counted. Decorative shutters that do not close are not counted.

"Caulking around any windows or doors to the outside" is available in these types: oil or resin base, latex, butyl-or polyvinyl-based, elastomeric or a filler such as oakum, caulking cotton, sponge rubber, or glass fiber types. Caulking is counted whether done on the inside or outside of the home.

Glossary (Continued)

"Weather-stripping around any windows or doors to the outside" can be applied on the inside or outside of the home. Weatherstripping is available in these basic types: thin spring metal, rolled vinyl, or foam rubber with adhesive backing.

Consumed: Is the amount of electricity or natural gas used by the household during the 365-day period. For fuel oil, kerosene, and LPG, the quantity represents fuel purchased, not fuel consumed. If the level of fuel in the tank was the same at the beginning and end of the annual period, then the quantity consumed would be the same as the quantity purchased. Measurements or reports of the level of fuel in the tank were not included in the data collection.

Constant 1980 Dollars: Expenditures expressed in constant 1980 dollars have the effects of inflation removed. This allows one to compare changes in expenditure without the confounding influence of inflation. To get a constant 1980 dollar figure, the 1979 figures were multiplied by 1.0896 and the 1978 figures by 1.1820. The gross national product implicit price deflator (GNP IPD) is the basis of constant dollars in this report.

Cooling Degree-Days: refers to the number of degrees per day the daily average temperature is above 65 degrees Fahrenheit. Normally, cooling is not required in a building when the outdoor average daily temperature is below 65 degrees. Cooling degree-days are determined by subtracting the base of 65 from the daily average temperature. For example, a day with an average temperature of 85 degrees has 20 cooling degree-days (85-65 = 20), while one with an average temperature of 65 degrees or lower has none. The average daily temperature is the mean of the maximum and minimum temperatures for a 24-hour period. The cooling degree-days for RECS households in the 48 States and the District of Columbia were assigned according to the NOAA division in which each household was located (See "NOAA Division"). Cooling degree-day totals for Alaskan and Hawaiian households were assigned by appropriate nearby weather stations.

Doors: (outside doors) go from a heated area to the outside or to an unheated area, such as an unheated porch or garage. Doors to a heated hallway in an apartment building, doors that were permanently sealed shut, and doors to an unheated attic or basement were not counted because these doors are not usually fitted with storm doors. The NIECS survey counted doors to an unheated attic or basement, but this rule was not followed in the RECS survey. Double doors were counted as one door. A pair of sliding glass doors was counted as one door in this survey. A pair of sliding glass doors was counted as two doors in the NIECS survey. "Standard" doors include doors with and without glass panels.

Electricity: See "Fuels."

Electricity Paid by Household: The household paid directly to the electric utility for all household uses of electricity, such as for hot water, space heating, air conditioning, cooking, lighting, and other appliances. See "Fuels".

Estimated Bills: This is calculated by the fuel supplier when the meter is not read. The estimate may be based on one or more of the following factors: past usage, usage by similar households, and weather data.

Expenditures: Refers to the cost for electricity or natural gas consumed during the 365-day period. Expenditures includes State and local taxes, but excludes merchandise, repairs, or special service charges. For households on a budget plan, the expenditures are for the actual consumption. Fuel oil, kerosene, and LPG expenditures are for the amount of fuel purchased which may differ from the amount of fuel consumed (see "Consumed").

Glossary (Continued)

Family Income: is the total combined income in 1979 from all sources of the family members before taxes and deductions. It includes wages, salaries, tips, commissions, and income from social security, pensions, interest, dividends, rent, public assistance, and unemployment insurance. This includes the total income for all family members who lived in the household in 1979, regardless of whether they were living there at the time of the interview. Income of nonfamily members of the household is not included. "Family" includes the following types of relationships: mother, father, sister, brother, son, daughter, father-in-law, uncle, aunt, niece, grandchild, foster child and similar relationships.

Federal Regions: The States are divided into ten groups as follows:

Region	States
1	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
2	New York, New Jersey
3	Delaware, Pennsylvania, Maryland, Virginia, West Virginia, District of Columbia
4	Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Florida
5	Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota
6	Louisiana, Arkansas, Texas, Oklahoma, New Mexico
7	Missouri, Iowa, Nebraska, Kansas
8	Colorado, Utah, North Dakota, South Dakota, Wyoming, Montana
9	Hawaii, Arizona, California, Nevada
10	Alaska, Idaho, Oregon, Washington.

Fireplace: is any masonry or pre-built installed fireplace. Fireplaces in mobile homes are included. A fireplace must have a permanent chimney built into the wall of the house. A free-standing fireplace that can be detached from its chimney is a heating stove.

Floor, Wall, or Pipeless Furnace: A floor furnace is located below the floor and delivers heated air to the room immediately above or, if under a partition, to the room on each side. A "wall furnace" is installed in a partition or in an outside wall and delivers heated air to the rooms on one or both sides of the wall. A "pipeless furnace" is installed in a basement and delivers heated air through a large register in the floor of the room or hallway immediately above.

Fuels: refers to the primary fuel delivered to the residential site. It may be converted at the site to some other energy form. "Electricity" is included in this report as a fuel.

"Coal" includes coke.

Glossary (Continued)

"Electricity" refers to metered electric power supplied by a central utility to a residence via underground or above-ground power lines. It does not refer to electricity generated onsite for the exclusive use of the residence. In this case, the fuel used for the generator will be indicated. The Btu equivalent for electricity is the energy value of electricity as received by the household (3,412 Btu per kilowatt hours). Electrical energy losses that occur in the generation and transmission of electricity are not included in the conversion of electricity into Btu for this report. If these losses were to be included in general, the conversion rate would be about 10,353 Btu per kilowatt hour.

"Fuel Oil" is No. 1, No. 2, or No. 4 grade fuel oil or residual oil which are burned for space- or water-heating purposes. No. 1 distillate fuel oil is a form of heating oil used mostly as a blending stock to assure that heavier grades of fuel flow under severe cold weather conditions. No. 2 distillate collectively refers to No. 2 heating oil and No. 2 diesel fuel. Although these products are not precisely identical, they are essentially interchangeable in most applications. No. 2 fuel oil is the most common form of heating oil. No. 4 distillate is a blend of No. 2 and No. 5 or No. 6 residual fuel oil used in large stationary diesel engines and boilers equipped with fuel preheating equipment. Residual fuel oil refers to the heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are boiled off in refinery operations.

"Kerosene" refers to a distilled product of oil or coal with the generic name "kerosene". Kerosene is similar to No. 1 distillate fuel oil and is used for space- or water-heating or lighting equipment using wicks. It is sometimes sold under the names of "range oil" or "stove oil".

"LPG or liquified petroleum gas" refers to any fuel gas supplied to a residence in liquid form such as propane or butane. It is usually delivered by tank truck and stored near the residence in a tank or cylinder until used. Propane was the most common liquified petroleum gas supplied to RECS households. Household use of LPG solely for outdoor gas grills is not considered sufficient use to mark the household as an LPG user.

"Natural gas" is utility gas supplied by underground pipeline to individual housing units by a central utility company. It does not refer to privately owned gas wells operated by the household.

"Solar Collector" refers to active, thermal, concentrating collectors using either air or liquid as the working fluid. It does not refer to passive collection of solar thermal energy.

Fuel Oil Paid by Household: The household paid directly to the fuel supplier for all household uses of fuel oil or kerosene such as for space-heating or water-heating. See "Fuels".

Gas Paid by Household: The household paid directly to the utility company for all household uses of natural gas such as for hot water, space heating, air conditioning, cooking, and appliances including outdoor gas lights. See "Fuels".

Head of Household: If the respondent was married and living with his or her spouse, the male was considered to be the head of the household. Otherwise, the respondent was the head of the household.

Heating Degree-Days: The number of degrees per day the daily average temperature is below 65 degrees Fahrenheit. Normally, heating is not required in a building when the outdoor average daily temperature is above 65 degrees. Heating degree-days are determined by substracting

Glossary (Continued)

the average daily temperature below 65 degrees from the base 65. For example, a day with an average temperature of 50 degrees has 15 heating degree-days (65-50 = 15), while one with an average temperature of 65 or higher has none. The average daily temperature is the mean of the maximum and minimum temperature for a 24-hour period.

The heating degree-days for RECS households in the 48 States and the District of Columbia were assigned according to the NOAA division in which each household is located (See "NOAA Division"). Heating degree-days for Alaskan and Hawaiian households were assigned by appropriate nearby weather stations.

Heating Stove Burning Wood, Coal, and Coke: Any free-standing box or controlled draft stove or built-in fireplace stove. Stoves are made of cast iron, sheet metal, or plate steel. Free-standing fireplaces that can be detached from their chimneys are considered heating stoves. "Airtight" stoves have a gasket around the doors to close off air leakage and control the amount of air intake. "Nonairtight" stoves do not have gaskets around their door openings.

Heat Pump (Reverse Cycle System): A year-round heating-air-conditioning system in which refrigeration equipment supplies both heating and cooling through ducts leading to individual rooms. It generally consists of a compressor, both in- and outdoor coils, and a thermostat.

When the heat pump is attached to a central furnace, the heat pump is either the main or secondary heating equipment depending on how often the heat pump operates. If it operates for a short time and then the furnace comes on, the heat pump is secondary (or additional heating equipment). If the heat pump is sufficient to provide the desired warmth, the heat pump is the main heating equipment.

Home Energy Audit: A visit to each housing unit by a professional energy auditor to advise the household on how it could save money on its energy bills. Advice received over the telephone (such as from an energy hotline) or from literature received in the mail is not counted. The "Energy audit provider" was a professional who represented an electric or gas company, a fuel oil or LPG company, or someone else such as a private contractor.

Hot-Deck Imputation: A procedure by which the household file is sorted by variables related to the missing item. A household is then selected which has the same value on the matching variables and this "donor" household supplies the value for the missing item. (See "Imputation").

Household: A group of up to 12 persons occupying the same housing unit. "Occupy" means the housing unit was the person's usual or permanent place of residence at the time of the first field contact. The household includes babies, lodgers, boarders, employed persons who live in the housing unit, and persons who usually live in the household, but are away traveling or in a hospital. The household does not include persons who are normally members of the household but who were away from home as college students or members of the armed forces at the time of the contact.

The household does not include persons temporarily visiting with the household if they have a place of residence elsewhere, persons who take their meals with the household but usually lodge or sleep elsewhere, domestic employees or other persons employed by the household who *do not* sleep in the same housing unit, or persons who are former members of the household, but have since become inmates of correction or penal institutions, mental institutions, homes for the aged or needy, homes or hospitals for the chronically ill or handicapped, nursing homes, convents or monasteries or other places in which residents may remain for long periods of time. By definition, the count of households is the same as the count of occupied housing units.

Glossary (Continued)

Housing Structure: One of four structure types used to categorize the building the housing unit was located in.

A "single-family housing unit" refers to a structure that provides living space for one household or family. The structure may be detached, attached on one side (semi-detached), or attached on two sides. Attached houses are considered single-family houses as long as the house itself is not divided into more than one housing unit and has an independent, outside entrance. A single-family house is contained within walls that go from the basement to the roof.

A "house or building with two to four housing units" is divided into living quarters for two, three, or four families or households. This category also includes houses originally intended for occupancy by one family or for some other use, but have since been converted to a separate dwelling for two to four families. Typical arrangements in these types of living quarters are separate apartments, downstairs and upstairs, or one apartment on each of three or four floors.

A "building with five or more housing units" refers to a building containing living quarters for five or more separate households or families.

A "mobile home or trailer" refers to a structure which has all the facilities of a dwelling unit, but is built on a movable chassis. It may be placed on a permanent or temporary foundation and contain one or more rooms. If additional rooms are added to the structure, it is still considered a mobile home.

Housing Unit: A structure or part of a structure where a household (family or individual) lives or could live. It has direct access from the outside of the building or through a common hall. Housing units do not include group quarters such as prisons, hospitals, dormitories, nursing homes, fraternity houses, or convents where ten or more unrelated persons live. Hotel rooms, motel rooms, mobile homes, or trailers are considered housing units if occupied.

Imputation: is a statistical method used to estimate the response to specific questions for which answers are missing. In general, it is a procedure for filling in missing data values.

Insulation: refers to any material which, when placed between the interior of the dwelling and the outdoor environment, reduces the rate of heat loss to the environment or heat gain from the environment. The four forms of insulation, illustrated in a drawing shown to respondents, are listed below:

"Blankets or batts"; rolls or pieces of insulation which are nailed or stapled between the rafters or wall joists (beams). It is usually made of fiberglass or rock wool.

"Loose particles or loose fill"; loose insulation comes in a bag and is poured between joists (beams). Loose insulation can also be blown into open spaces. Loose fill can be glass fiber, rock wood fibers, cellulosic fiber, or vermiculite.

"Firm foam or firm plastic"; rigid boards (such as styrofoam) that can be cut to size and either edged, nailed, or glued into place.

"Sprayed-in urethane foam" is not shown separately as a category because the description used in the survey was inaccurate. Urethane foam is not sprayed in because it expands so much that confined areas may be broken apart by the force of the expanding substance. The more general category of "sprayed foam" will be used in the future to include all types of foam insulation.

Glossary (Continued)

"Floor insulation" is insulation between the bottom floor and the unheated basement or crawl space. Carpeting or carpeting pads are not insulation.

LPG Paid by Household: The household paid directly to the fuel supplier for all household uses of LPG such as for hot water, space heating, air conditioning, cooking (cooking on an outdoor grill is not counted) and other appliances. See "Fuels".

Main Cooking Fuel: is the answer to the question: "Thinking of all the different kinds of cooking done here, including cooking in the oven, on a range, and with small appliances, which fuel is used most?"

Main Heating Equipment: (See description of specific heating equipment.) Main heating equipment, if temporarily out of order, is reported as the main heating equipment. If two types of heating equipment are used, the main equipment is the one used more. If both are used equally, the main equipment is the one that appears first on the list in the question.

Main Heating Fuel: The fuel mentioned by the respondent in response to Question 21, "What is the main fuel used for heating this house (apartment)?" Question 24 asked about the main heating fuel used to heat the house (apartment) in the winter of 1979-80. This question does not apply to housing units not yet built in the winter of 1979-1980 or to housing units not heated in the winter of 1980-1981 (and assumed not to have been heated in the winter of 1979-1980).

Main Outside Wall Material: The predominant type of wall material. Houses built with two materials used in approximately the same amount are classified as having a "combination" of materials.

Master-Metered: The method used by utility companies (e.g., electricity and natural gas) to measure the total volume of energy used by several individual customers collectively.

NIECS: The National Interim Energy Consumption Survey, the first developmental survey in the planned series of Residential Energy Consumption Surveys. The NIECS contacted 4,081 households in October and November 1978. Fuel suppliers provided data on consumption and expenditures for the period April 1978 through March 1979.

NOAA Division: One of the 344 weather divisions designated by the National Oceanic and Atmospheric Administration (NOAA) encompassing the 48 contiguous States. These divisions usually follow county borders to encompass counties with similar weather conditions. The NOAA division does not follow county borders when weather conditions vary considerably within a county such as is likely to happen when the county borders the ocean or contains high mountains. A State contains an average of seven NOAA divisions; a NOAA division contains contains an average of nine counties.

Nominal Dollars: is the value of dollars for the year specified. Sometimes called "current dollars", nominal dollars have not been modified to remove the effects of inflation. See also "Constant Dollars".

Number of Rooms: Whole rooms are rooms such as living rooms, dining rooms, bedrooms, kitchens, lodger's rooms, finished basements or attic rooms, recreation rooms, and permanently enclosed sun porches which are used year-round. Rooms used for offices by a person living in the unit are included in this survey.

Bathrooms, halls, foyers or vestibules, balconies, closets, alcoves, pantries, strip or pullman kitchens, laundry or furnace rooms, unfinished attics or basements, open porches, and unfinished space used for storage are not included.

Glossary (Continued)

A partially divided room, such as a dinette next to a kitchen or living room, is a separate room only if there is a partition from floor to ceiling, but not if the partition consists solely of shelves or cabinets. If a room is used by occupants of more than one unit, the room is included with the unit from which it is most easily reached.

Rooms are counted as year-round living space if they are completely enclosed with permanently installed walls, windows, and roof, and can be heated.

Occupied Housing Unit: A unit someone was living in as his/her usual or permanent place of residence at the time of the first field contact.

Origin: Each respondent was asked, "Which of the groups on this exhibit best describes your origin"? The groups included--white, black or negro, American Indian, Alaska native, Asian, Pacific Islander. The word "race" was not used in either the questionnaire or the instructions.

Owner/Renter: Own/rent refers to the structure itself, not the land on which it is located. The household is classified "renter" even if the rent is paid by someone not living in the unit. "Rent-free" means the unit is not owned or being bought and no money rent is paid nor contracted for. Such units are usually provided in exchange for services rendered or as an allowance or favor from a relative or friend not living in the unit. "Rent-free" also includes occupants who pay only for utilities. Unless shown separately, "rent-free" households are grouped together with "renters".

Poor: "Total Poor (100 Percent Level)" defines a group of households with incomes below the poverty level defined by the Bureau of the Census. "Total Poor (125 Percent Level)" defines a group of households with incomes of 125 percent of the poverty level. This group of the poor and near poor represent an alternative level for defining poverty. The definitions of poor are based on the number of family members in the household and family income. Because income data were collected by using categories of income (for example, $3,000 to $3,999), an exact match of Census thresholds could not be made. In addition, the RECS survey did not ask about the farm-nonfarm distinction, thus further limiting a closer match to Census thresholds which are lower for farm households.

Table H. Definition of Poor

Number of Persons per Family	100 Percent Level of Poverty: 1979 RECS Income Range Less than:	100 Percent Level of Poverty: Census Threshold*	125 Percent Level of Poverty: 1979 RECS Income Range Less than:	125 Percent Level of Poverty: 125 Percent of 100 Percent Threshold
1	$4,000	$3,683	$5,000	$4,604
2	$5,000	$4,702	$6,000	$5,878
3	$6,000	$5,763	$7,000	$7,204
4	$7,000	$7,386	$9,000	$9,233
5	$9,000	$8,736	$11,000	$10,920
6	$10,000	$9,849	$12,000	$12,311
7 or more	$12,000	$12,212	$15,000	$15,265

*Figures from the Bureau of the Census, Money Income and Poverty Status of Families and Persons in the United States: 1979 (Advance Report), (Series P-60, No. 125), October 1980. See Table 17, page 28.

The definitions above produced an estimate of 10.897 million poor households (100 percent level of poverty) and 14.774, million poor households at the higher level. The Bureau of the Census estimate for March 1980 is 9.521 million poor households (100 percent of poverty) and 13.670 million poor households (125 percent level of poverty). The Census estimates have not been adjusted for the 1980 Census which counted several million households more than were anticipated. The RECS estimates are based on the 1980 Census results and thus would be expected to be larger than estimates not based on the larger number of households found in the 1980 Census.

Portable Heater(s): Heaters that can be picked up and moved including electric heaters that get current through a cord plugged into an electrical wall outlet. Portable space-heaters are included in this category.

Quadrillion: Or "quad" equals 1,000,000,000,000,000 or 10^{15}.

Race: See "Origin".

Residential: Refers to occupied housing units including mobile homes, single-family housing units (attached and detached), and apartments. The definition of housing units is the same as that used by the Bureau of the Census. See "Household" and Housing Unit" for further definition.

Rooms: See "Number of Rooms".

Refrigerators: with no freezer sections are included in the nonfrost-free category. "Frost-free" means that frost does not buildup on the sides of the freezer section or ice cube section.

Room Heaters Burning Gas, Oil, Kerosene: are circulating heaters, convectors, radiant gas heaters, space-heaters or other nonportable room heaters which may or may not be connected to a flue, vent, or chimney.

Rural: refers to places which had a population of less than 2,500 in the 1970 Census.

Glossary (Continued)

Screener Survey: The Residential Energy Consumption Survey which contacted 4,033 households in October and November 1979. Fuel suppliers provided data on consumption and expenditures for the period April 1979 through March 1980. This survey was named the Household Screener Survey because it was used to screen households for participation in the household Transportation Panel.

Secondary Heating Equipment: Equipment used in addition to the main equipment. Description of the secondary heating equipment is the same as for the main heating equipment.

SMSA: A group of households located within Standard Metropolitan Statistical Areas (SMSA's) as defined in the 1970 Census. Except in New England, an SMSA is a county or group of contiguous counties which contain at least one city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. The contiguous counties are included in an SMSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, SMSA's consist of towns and cities, rather than counties. "Non-SMSA" refers to households not located within SMSA's as defined in the 1970 Census.

Square Feet: The floor area of the housing unit that is enclosed from the weather. Basements are included whether or not they contain finished space. Garages are included if they are attached to the house. Attics that have finished space and attics that have some heated space are included. Crawl spaces are not included even if they are enclosed from the weather. Sheds and other buildings that are not attached to the house are not included. "Measured" square feet means the measurement of the dimensions of the home did not rely on the respondent's reports but was an actual measurement by the interviewer using a metallic, retractable, 50-foot tape measure. All "measurements" are standardized to outside estimates, if not already outside measurements. For details on how the measurement was made and how the data were treated, see Appendix B.

"Heated square feet" is that portion of the measured square feet that is heated during most of the season. Rooms that are shut off during the heating season to save on fuel use are not counted as heated square footage. Attached garages that are unheated and unheated areas in basements and attics are not counted as heated square feet.

Steam or Hot Water System with Radiators or Convectors: A central heating system supplying steam or hot water to conventional radiators, baseboard radiators, heating pipes embedded in the walls or ceilings, or heating coils or equipment which are part of a combined heating-ventilating or heating-air-conditioning system. This category also includes hot water pipes under the floor which provides central radiant heating through hot water pipes inlaid in a concrete, slab floor.

Storm Doors and Windows: Storm doors made of double or insulating glass such as thermopane. Glass or plexiglass placed over a sliding glass door on either the exterior or interior is counted as a storm door. A plastic sheet covering the door is not counted as a storm door.

Storm windows are added to the exterior of existing windows. Windows made of double or insulating glass, such as thermopane, are storm windows. Glass or plexiglass placed over windows on either the interior or exterior side are included. Plastic sheets covering windows are not included.

Note: Responses of "don't know" for storm doors, windows, and/or attic insulation were treated the same as "do not have". For example, a respondent who indicated his/her house had storm windows (some or all) and storm doors (some or all) but who did not know if it had attic insulation, was counted in the "have one or two of these" category.

Glossary (Continued)

Type of Utility: Households were classified on the basis of whether the utility was privately, publicly, or customer-owned. Electric utilities were designated on the basis of their membership in one of the following associations:

Designation	Association Membership
Privately Owned	Edison Electric Institute (EEI)
Publicly Owned	American Public Power Association (APPA)
Customer Owned	National Rural Electric Cooperative Association (NRECA)

Gas utilities were designated privately owned if the utility was a member of the American Gas Association.

The utility ownership was designated "unknown" if the household's fuel supplier could not be classified because the supplier was not listed as a member of one of the aforementioned associations or if the fuel supplier was unknown because the household did not pay directly to the supplier for the fuel used.

Urban: Includes housing in places of 2,500 inhabitants or more as defined in the 1970 Census.

Utilities Paid by Household: Fuel suppliers or utility companies paid directly for all electricity, natural gas, fuel oil, kerosene, or liquified petroleum gas used by the household. Households paying directly to the utility were classified in this survey as "all paid." Households that paid directly for at least one but not all of their fuels used and had at least one fuel charge included in their rent were classified as "some paid, some included in rent". Households in which all fuels used were included in their rent were classified as "all included in rent". Some households were classified as "other" if they did not fall into any of the above three categories. Included are households for which fuel bills were paid by a department of social services or a relative, and households that paid for some of their fuels used but paid for other fuels through some other arrangement.

Windows: All windows in the year-round living space. Windows in the basement, attic, garage, and porch are included only if these areas are heated. Windows in doors are not included. Each window that opens separately is counted as one window. Windows fixed in place are also counted. Respondents were shown an exhibit which presented the picture of a door of standard size and a large, medium, and small-sized window beside the door for comparison. In addition, each size of window was defined in square feet to enable the interviewer or respondent to classify windows by multiplying the width times the height.

Vacant Housing Unit: A housing unit not occupied at the time of the first field contact. An occupied seasonal or migratory housing unit is classified as vacant at the time of the first field contact when all persons had a usual place of residence elsewhere.

Water-Heating Fuel: The answer to the question "Which fuel is used most for heating water"? This included households that did not have running water water in their home. This fuel is used for heating water for bathing and washing. The hot water may have been available anywhere in the same building as the respondent's living quarters. This may have been in a hallway, in a room used by several units in the building, in the basement, or on an enclosed porch provided the respondent's household had access to it.

Glossary (Continued)

Weatherization Program: A community program to help some people save energy by providing and installing such materials as insulation, storm windows, or storm doors at no cost to the household.

Wood Burned: Amount of wood burned in the home at any time in the past 12 months in either a fireplace, stove, or furnace as reported by the respondent at the time of the interview. Households burning less than 1/3 of cord of wood are not shown separately in this report, nor is their consumption of wood included in figures on wood consumption. January 1981 represents the midpoint of interviewing; therefore, the consumption period for wood burned in the prior 12 months is calendar year 1980 for the typical respondent. This means the figures for wood burned cover part of the 1979-1980 heating season and part of the 1980-1981 heating season.

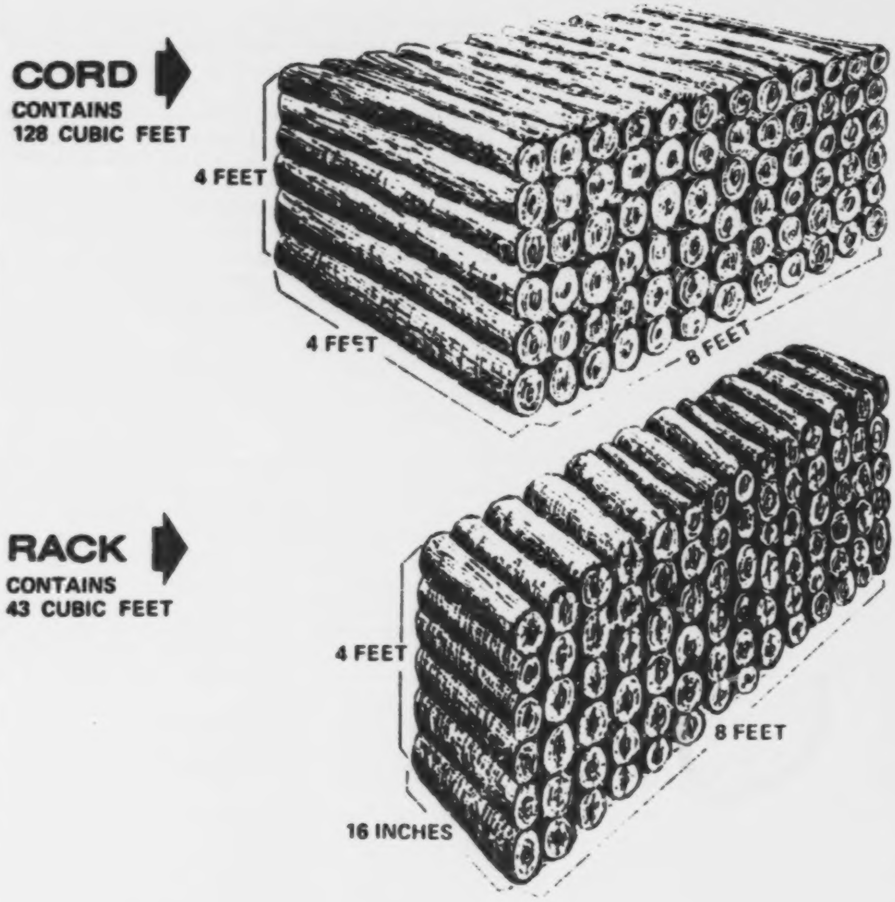
A "cord" measures 4 feet by 4 feet by 8 feet and is approximately 128 cubic feet. A third of a cord measures 16 inches by 4 feet by 8 feet. The picture below of a cord and a rack (1/3 of a cord) was shown to respondents.

The conversion of cords of wood into a Btu equivalent is an imprecise exercise. First, the number of cords burned by each household is imprecise as the estimate requires the respondent to sum up the use of wood over a 12-month period during which time wood may have been added to the supply as well as removed. In addition to the recall errors inherent in this task, the estimates are subject to problems in definition and perception of what a cord is. The nominal cord as delivered to a suburban residential buyer may differ from the dimensions of the standard cord. This can occur because wood is most often cut between the length that makes a third of a cord (16 inches) and a half a cord (24 inches).

In other cases wood is bought or cut in unusual units (e.g., pickup truck load or trunk load). And finally, volume estimates are difficult to make when the wood is not stacked up but is left in a pile.

Other factors which make it difficult to estimate the Btu value of the wood burned is that the amount of empty space inbetween the stacked logs may vary from 12 to 40 percent of the volume. The moisture content may vary from 20 percent in dried wood to 50 percent in green wood. Moisture reduces the useful Btu output as energy is used to drive off the moisture. And finally, some tree species contain twice the Btu content of species with the lowest Btu value. Generally, hardwoods have greater Btu value than softwoods. Wood was converted to Btu at the rate of 20,000,000 Btu per cord which is a rough average taking all these factors into account.

Size and Volume Contained in a Cord and a Rack of Firewood


CORD
CONTAINS
128 CUBIC FEET
4 FEET
4 FEET
8 FEET
RACK
CONTAINS
43 CUBIC FEET
4 FEET
8 FEET
16 INCHES

Materials on the Residential Energy Consumption Survey

Residential Energy Consumption Survey: Conservation, February 1980, DOE/EIA-0207/3, GPO Stock No. 061-003-00087-8, $6.00

Single-Family Households: Fuel Inventories and Expenditures: National Interim Energy Consumption Survey, December 1979, DOE/EIA-0207/1, GPO Stock No. 061-003-00075-4, $1.75.

Residential Energy Consumption Survey: Characteristics of the Housing Stock and Households, 1978, February 1980, DOE/EIA-0207/2, GPO Stock No. 061-003-00093-2, $4.25.

Residential Energy Consumption Survey: Consumption and Expenditures, April 1978 Through March 1979, July 1980, DOE/EIA-0207/5, GPO Stock No. 061-003-00131-9, $6.50.

Residential Energy Consumption Survey: 1979-1980 Consumption and Expenditures (Part I: National Data Including Conservation), April, 1981, DOE/EIA-0262/1, GPO Stock No. 061-003-00191-2, $5.50.

Residential Energy Consumption Survey: 1978-1980 Consumption and Expenditures (Part II: Regional Data), May 1981, DOE/EIA-0262/2, GPO Stock No. 061-003-00189-1, $8.50.

Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, June to August 1979, June 1980, DOE/EIA-0207/4, GPO Stock No. 061-003-00156-4, $3.75.

Residential Energy Consumption Survey: Housing Characteristics, 1980, June 1982, DOE/EIA-0314, GPO Stock No. 061-003-00256-1, $11.00.

Copies of the above reports are available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

Residential Energy Consumption Survey: Consumption Patterns of Household Vehicles, June 1979 to December 1980, April 1982, DOE/EIA-0319. Copies are available from the National Energy Information Center, 1F-048, Forrestal Building, U.S. Department of Energy, Washington, DC 20585. Telephone: (202) 252-8800.

Copies of the following household data files on magnetic tape with name, address, and other potentially identifying data removed, are available from the National Technical Information Service, Computer Products Division, 5285 Port Royal Road, Springfield, Virginia 22161. Telephone: (703) 487-4808.

National Interim Energy Consumption Survey: Household Interview File, Accession No. PB-81-108714, $125.00.

National Interim Energy Consumption Survey: Household Monthly Energy Consumption and Expenditures, Accession No. PB-82-114901, $125.00.

Household Screener Survey: Household Characteristics and Annualized Consumption, Accession No. PB-82-114877, $125.00.

*U.S. GOVERNMENT PRINTING OFFICE: 1983-380-903:80